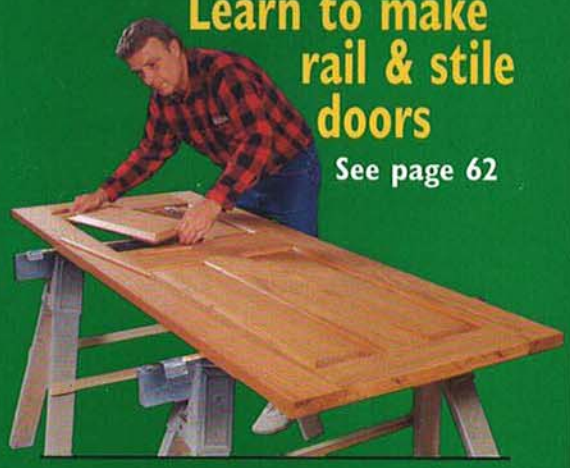
SEE OUR SOLAR KILN Page 44

Better Homes and Gardens®

WOOD®

THE WORLD'S LEADING WOODWORKING MAGAZINE

JUNE 1994 • ISSUE NO. 70
Please display until June 8

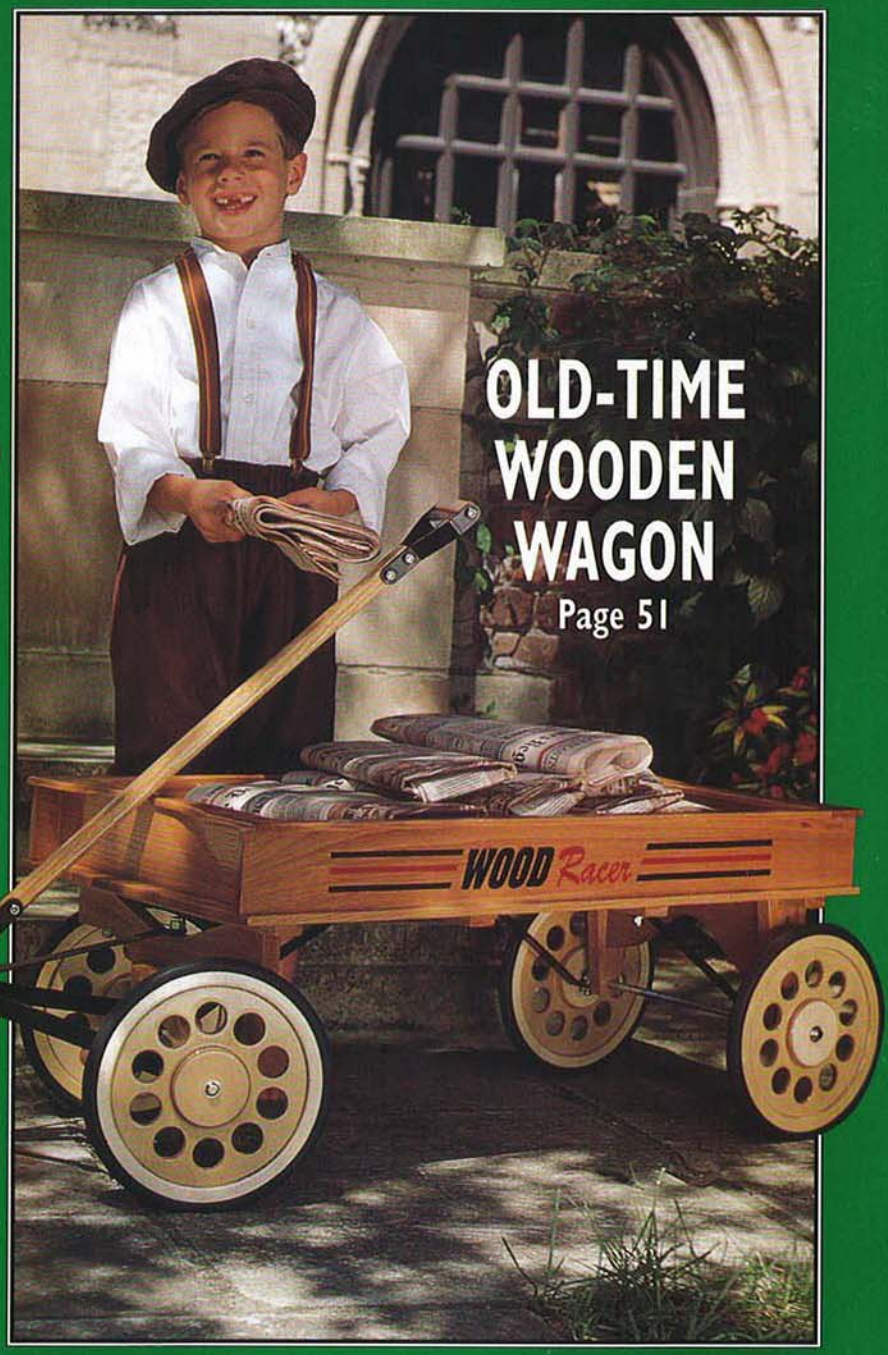


Learn to make rail & stile doors

See page 62

PLUS THESE GREAT PROJECTS

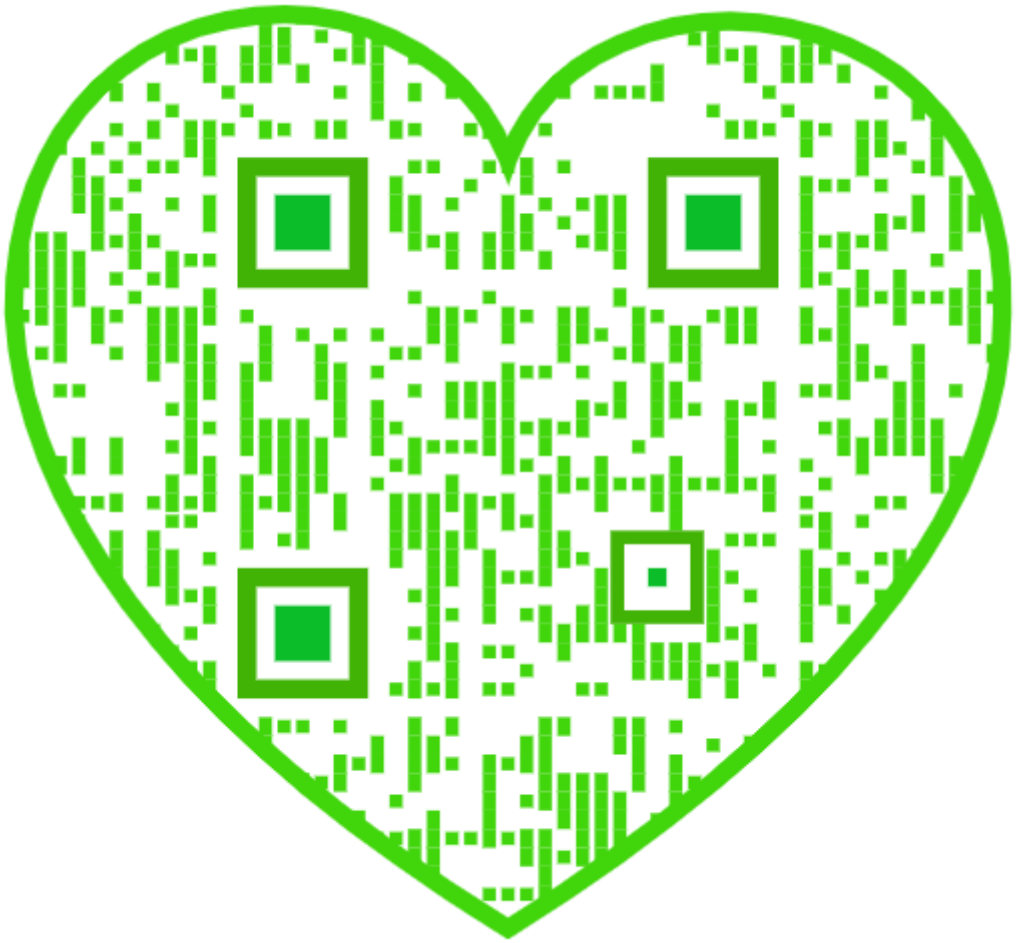
- Triplane whirligig
- Bandsawn flower
- Southwest bowls
- Toy fishing rod
- 5 nifty vacuum-clamping jigs



OLD-TIME WOODEN WAGON

Page 51

06
$4.95
0 14005 14072 2



FRIENDLY PHONE OPERATORS

"THE BEST IN THE BUSINESS"

When it comes to getting your money's worth—and more—Grizzly Imports is impossible to beat. For over 10 years we've provided woodworkers everywhere with the best machines at the lowest possible prices and a customer service record that is the envy of the industry. Our operators greet you with a friendly, courteous voice and efficiently process your order. Each of our machine shops are fully staffed with highly skilled machinists ready to answer your technical questions. The instruction manual included with your machine was written by Grizzly's own Technical Writers to make your assembly process fast and painless. *In short, we're with you before, during and after the sale.*

Grizzly IMPORTS, INC.

KNOWLEDGEABLE SERVICE TECHNICIANS

ORDERS ARE SHIPPED THE SAME DAY

IN-HOUSE MOTOR REWINDING SHOP

12" PLANER

SPECIAL OFFER!
MODEL G1017
ONLY $395.00
WITH FREE EXTRA BLADE SET!

- 2 HP, 110V motor • Dual-knife cutterhead
- Capacity: 12" wide x 5-1/2" thick stock
- Optional dust hood available
- Shipping weight: approx. 84 lbs.
- Complete with instruction manual

6" X 47" JOINTER HEAVY-DUTY

MODEL G1182
REG. $375.00
SALE PRICE
ONLY $355.00

- 1 HP 110/220V motor
- Cabinet-type stand
- Longest (47") bed of all jointers in its class
- Heavy-duty center-mounted fence
- Shipping weight: approx. 250 lbs.

1-1/2 H.P. SHAPER

MODEL G1035
LOW PRICE
ONLY $495.00

- 2 interchangeable spindles (1/2" & 3/4")
- Table size 20" x 18" precision-ground, cast iron table
- Dual speed, reversing motor
- 2 independently adjustable 2-1/2" x 10" fence
- Shipping weight: approx. 300 lbs.

NEW

10" TABLE SAW

MODEL G1059
INTRODUCTORY PRICE
ONLY $295.00

- 1-1/2 HP motor, 110/220V
- Precision groundcast iron table
- Die-cast aluminum wings
- Heavy-duty rip fence
- Full-size, all metal miter gauge
- Shipping weight: 185 lbs.

8" SUPER HEAVY-DUTY JOINTER

MODEL G1018
LOW PRICE
ONLY $650.00

- 1-1/2 HP, 220V motor
- 3-knife cutterhead
- Magnetic switch for safety and overload protection
- 65" x 8" precision ground, cast iron bed
- Shipping weight: approx. 460 lbs.

3 H.P. SHAPER

MODEL G1026
LOW PRICE
ONLY $795.00

- Heavy-duty all-steel miter gauge with full-length bar • Cast iron wing
- Solid, polished cast-iron table top
- Table with standard wing attachment measures 28-7/8" x 28"
- Large steel handwheels for easy adjustment
- Shipping weight: approx. 400 lbs.

10" HEAVY-DUTY TABLE SAW

- 1-1/2 HP motor, 110/220V
- 2 Cast iron wings
- Precision ground cast-iron table top with T-slots
- Table size with extension wings: 41" x 27"
- Shipping weight: approx. 255 lbs.

MODEL G1022
LOW PRICE ONLY $375.00

20" PLANER

MODEL G1033
LOW PRICE
ONLY $1195.00

- Precision ground cast iron bed
- 2 speeds 16' and 2' per. min.
- Capacity: 20" wide x 6" tall
- 4-blade all-ball bearing cutterhead
- Shipping weight: approx. 800 lbs.

16" BAND SAW

THE BEST 16" BANDSAW IN THE WORLD!
MODEL G1073
INTRODUCTORY PRICE HELD
ONLY $550.00

- 1-1/2 HP, 220V motor
- Heavy-duty rip fence
- One-piece, cast iron body
- Hinged wheel covers
- Micro-adjustable blade guides
- Shipping weight: approx 350 lbs.

10" TILTING ARBOR SUPER HEAVY-DUTY TABLE SAW

MODEL G1023
LOW PRICE
ONLY $850.00

Table size with extension wings is 36.06" x 27.08"

- 3 HP Motor, 220V
- Precision ground solid cast iron table and wings
- Steel miter gauge • Shipping weight: 450 lbs.

24" DRUM SANDER

MODEL G1066
LOW PRICE
ONLY $1095.00

- Single phase, 220V, 5 HP motor
- Separate 1/4 HP belt feed motor
- Dual belt-driven sanding drums
- Heavy-duty magnetic switch
- Built-in dust collection ports
- Shipping weight: approx. 500 lbs.

2 H.P. DUST COLLECTOR

MODEL G1029
LOW PRICE $275.00
WITH FREE 4" X 10' HOSE

- Single phase, 220V, 2 HP motor
- Handles two machines with ease
- Suction capacity: 1182 cfm
- Shipping weight: approx. 124 lbs.
- Complete with instruction manual

ALL MACHINES ABOVE ARE F.O.B. BELLINGHAM, WA OR WILLIAMSPORT, PA

1-800-541-5537
P.O. BOX 2069, BELLINGHAM, WA 98227
Customer Service (206) 647-0801 FAX (800) 225-0021
WEST OF THE MISSISSIPPI

CALL TODAY FOR YOUR free 1994 TOOL CATALOG

1-800-523-4777
2406 REACH ROAD, WILLIAMSPORT, PA 17701
Customer Service (717) 326-3806 FAX (800) 438-5901
EAST OF THE MISSISSIPPI

EDITOR'S ANGLE

Even our ad sellers get into the woodworking act

▲*Our direct-response ad staff gathering pearls of woodworking wisdom from Jim Boelling.*

▼*Brenden Delaney showing off his heirloom cradle—a real hit at his house.*

I realized a long time ago that to be successful in the woodworking publication business, you've got to know the subject matter well. That's why at *WOOD*® magazine, we have plenty of technical expertise on staff and a stableful of free-lance specialists at the ready when we don't have all the answers.

This same philosophy spills over into our ad-sales department as well. We know that advertisers like to work with people who at least understand the fundamentals of woodworking. Because of this, all of our ad sellers, several of whom work out of New York City offices, get to spend a day in the shop with Jim Boelling, *WOOD* magazine's project builder.

Recently, three of our sellers—Brenden Delaney, Victoria Pelcyger, and Grace Chung—made the trek to Des Moines. This was a hands-on woodworking first for Victoria and Grace. But after a few hours of building a heart-shaped bandsaw box with Jim, Grace said, "Until today, I thought that woodworking was humanly impossible to do. My next project will be the tall clock" (from Issue 53). How's that for confidence! Victoria added, "I had a little trouble with the bandsaw at first, but by the day's end, I felt like a pro."

Brenden, the third member of the group, has had considerable hands-on experience remodeling his home in New Jersey. And as the photo *above right* shows, he isn't afraid to tackle a major woodworking project, either.

Hot off the press

Looking to build a few terrific projects for your deck, patio, or lawn? Or are you the type who wants to improve your woodworking with a ton of hardworking shop tips? With our latest two publications, we've got you covered. See our ad on *page 87* for *300 Great Shop Tips, Volume II*™, a compilation of our best tips from issues 36–70, and our hot-off-the-press *WOOD Magazine's Best Outdoor Projects*™.

Larry Clayton

TABLE & CHAIR KITS
READY TO
ASSEMBLE & FINISH
SOLID WALNUT
CHERRY-OAK-MAHOGANY

FREE
CATALOGUE

SOLID WALNUT
Furniture Parts

Adams Wood Products, Inc.
974 Forest Dr., Dept. M25,
Morristown, TN 37814
(615) 587-2942
Fax (615) 586-2188

END WOOD ABUSE!
Replace "Old-Fashioned Pin Torture"

with the "Wood-Friendly"™ Wagner L606 Moisture Meter

- Deep Penetrating, Pin-Free
- Convenient Pocket Size
- The First Moisture Meter of Its Kind Under $200

L4.5"x W2.75"xH1.5"

WAGNER ELECTRONIC PRODUCTS
326 Pine Grove Rd.
Rogue River, OR 97537
(503) 582-0541
Fax (503) 582-4138
1-800-944-7078

©1993 WAGNER ELECTRONIC PRODUCTS, INC.

It's As Easy As 1-2-3-4-5

Introducing the new EZ-1 from AIRY

Model EZ-1

Meet the world's first five function nailer. Use both brad nails and staples from the same tool. AIRY's patented design allows you to choose different fasteners without changing tools or making adjustments. This could be the handiest tool you'll ever own. Ideal for moldings, furniture, cabinets, upholstery, picture frames, insulation and much more.

The EZ-1 comes ready to use with its own carrying case and an assortment of 5 different fasteners.

ASK your dealer about our complete line of tools and compressors.

AIRY®

AIRY SALES CORPORATION

14535 Valley View Ave., #N
Santa Fe Springs, CA 90670
310-926-6192 • (FAX) 310-404-1400

THE WOODTURNERS CATALOG

Craft Supplies USA offers woodturners the finest selection of woodturning tools and accessories anywhere.

CHOOSE FROM:

- HENRY TAYLOR TOOLS
- RICHARD RAFFAN TOOLS
- DALE NISH WORKSHOPS
- WOODFAST WOOD LATHES
- COMPLETE LINE OF PEN, PENCIL, FOUNTAIN AND ROLLERBALL KITS

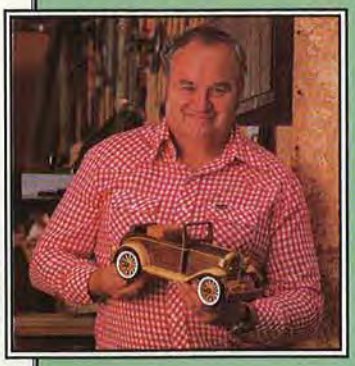
We offer the best quality, prices and service, guaranteed!
Send $2.00 for our 52 page color catalog.
Craft Supplies USA
PO Box 50300
Provo UT 84605-0030
Phone (801) 373-0919

Better Homes and Gardens®

WOOD®

THE WORLD'S LEADING WOODWORKING MAGAZINE

JUNE 1994 ISSUE NO. 70



CRAFTSMAN CLOSEUP

The detail master keeps them rolling 31

When his area's steel mill closed in 1986, Pennsylvanian Tom Rolison suddenly found himself out of work. Then, he discovered wood. He developed a line of model cars, trucks, and trains to sell and, in a few short years, ran a successful business. Today, Tom couldn't be happier.

WHAT WOODWORKERS NEED TO KNOW

Bandsaw blades 36

Gather in our nuggets of bandsaw-blade wisdom as we look at blade selection, tooth differences, uses, and wear.

Ace-of-hearts triplane whirligig 38

What's up? Try our clever World War I-era prop plane, complete with pilot and waving scarf. You'll find the full-sized plans inside.

***WOOD*® magazine builds a solar kiln** 44

Dry your own lumber after building the hardworking 8×8×12' kiln shown here. For the best results, order our blueprint plans.

Nine-issue index 47

Find the wood projects, techniques, features, and tool-buying stories of issues 59-67 quickly and easily with this handy reference.

The fun-time racer 51

Delight your child or grandchild with an heirloom project that's based on an actual antique design. Our wooden wagon is tough, good-looking, and promises years of service to the lucky recipient.

This issue's cover wood grain: sweet gum sapwood

CARVING

Carving by design 58

Feast your eyes on the aquatic masterpieces by champion carver Rick Beyer. Then, read about Rick's unique creative approach.

SHOP-TESTED TECHNIQUES

Custom-craft your own rail-and-stile doors..... 62

Adorn your home by replacing your hollow-core doors with the solid-wood beauties discussed here.

TURNING

Bowls with a past..... 68

Native Southwest pottery shapes translate into beautiful woodturnings. You'll find templates for all seven shapes included in the story.

CRAFT SHOP

Lumberyard long-stems..... 72

Bandsaw the patterns found inside and make a bouquet of wooden flowers that, once painted, you can enjoy year-round.

A reel deal 74

Now, the little anglers in your family can practice pulling in the big ones indoors. Make our rod and reel from dowels, scrap, and string.

Vacuum-veneering and clamping 76

Learn a fool-proof system for applying unruly veneer, or expand your clamping horizons with a technology currently used by woodworking production shops. We show you five handy clamping jigs for helping with circle-cutting, sanding, and other common tasks.

SHORT-SUBJECT FEATURES

Editor's Angle 1
Talking Back 6
Tips From Your Shop.....10
Yesterday's Tools.....18
Ask *WOOD*.....20
Products That Perform.....24
Wood Anecdote.....85
Information Worth Writing For 92
Finishing Touches.....96

TAKE A CLOSER LOOK

PERFORMAX 16-32

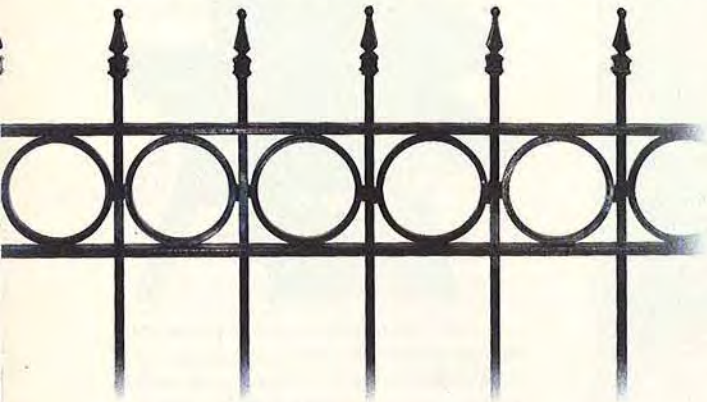
You'll enjoy taking a closer look at your finished project when it's been sanded by a PERFORMAX 16-32. This space-saving benchtop drum sander will surface, dimension and finish sand to a flawless finish. Easy-to-wrap, non-adhesive abrasive strips range from 36 to 220 grit. Sand stock as wide as 32" in two passes, as short as 2 1/4", and as thick as 3". Scroll saw cut-outs can be sanded in seconds.

A PERFORMAX 16-32 Will Exceed Your Expectations. See a demonstration at the dealer nearest you. Call for brochures on our complete line of drum sanders.

1-800-334-4910 OR (612)895-9922
or write: PERFORMAX PRODUCTS, *WD08*
12211 Woodlake Dr., Burnsville, MN 55337

TM
YOU NEED THIS FREE SAMPLE OF
Saral®
Wax-Free Transfer Paper
Here's Why:
Transfer your design to any surface with Saral® Transfer Paper
• Waxless and greaseless - erases like pencil with no smear
• Ink or paint over the tracing - won't skip
• Re-usable
• Available in 5 colors: graphite, white, blue, red, yellow
• Comes in Sampler and Tole Kit packages, and 12-ft. Rolls
To get your FREE SAMPLE send a self addressed, stamped business envelope to:
Saral Paper Co. Inc., Dept. WD
322 W. 57th St., Suite 30-T
New York, NY 10019
(212) 247-0460

Corners. Nooks. Crannies. Notches. The powerful new Ryobi Detail Sander takes care of all your sanding details. Its triangular head gets into places other sanders can't reach. And its oscillating action produces extra fine finishes, virtually eliminating finger sanding.



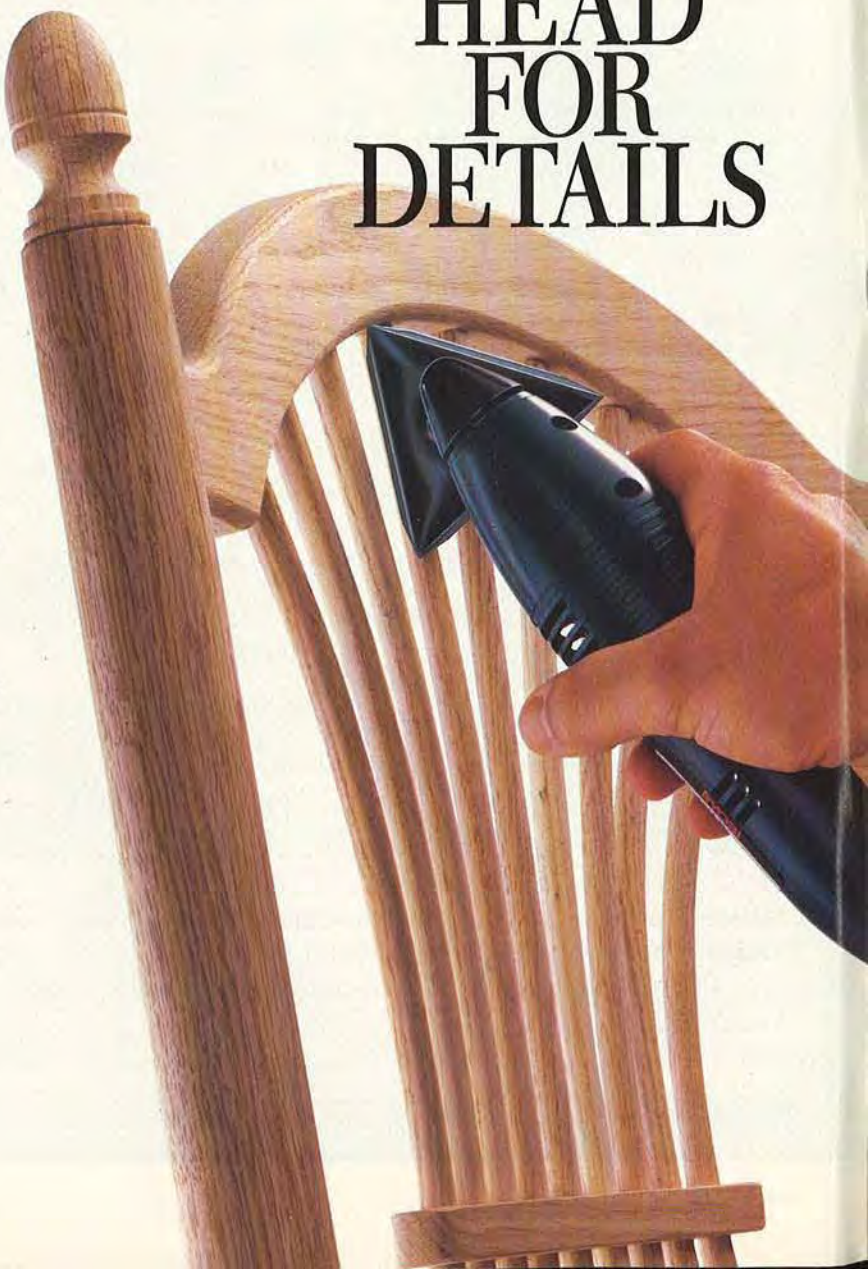
Optional add-on accessories turn this versatile tool into even more of a small wonder. Besides sanding, you can use the Detail Sander for removing light rust from intricate surfaces – like ornamental wrought iron furniture and railing – with the Metal Finishing Pad. Remove paint and adhesive from glass and wood easily with the Scraper Blade. Wax and polish tight spots and angles with the Wax/Buffing Pad; ideal for car detailing.

Remove paint and varnish from hard-to-reach surfaces easily with the Stripping Pad. Or smooth bare wood and prepare newly painted surfaces between finish coats with the Finishing Pad.

The Ryobi Detail Sander. It's fast, versatile and easy to use. For even more details, stop by your Ryobi dealer today or call 1-800-525-2579.

Made in USA by Ryobi

A HEAD FOR DETAILS



RYOBI®

Making Innovative Concepts A Reality™

Ryobi America Corp., 5201 Pearman Dairy Road, Suite 1, Anderson, SC 29625-8950

© Ryobi America Corp. 1992

Better Homes and Gardens®
WOOD®
THE WORLD'S LEADING WOODWORKING MAGAZINE

June 1994 • Vol. 11, No. 4 • Issue No. 70

Editorial/Art Staff

Editor **LARRY CLAYTON**
Managing Editor **JIM HARROLD**
Art Director **C. L. GATZKE**
Design Editor **JAMES R. DOWNING**
Senior Editor/Features **PETER J. STEPHANO**
Senior Editor/How-To **MARLEN KEMMET**
Assistant Managing Editor/Products **BILL KRIER**
Special-Interest Editor **LARRY JOHNSTON**
General-Interest Editor **TOM JACKSON**
Associate Art Director **PERRY A. McFARLIN**
Graphic Designer **CHERYL A. CIBULA**
Project Builder/Design Editor **JAMES E. BOELLING**
Production/Office Manager **DARLENE REYNOLDS**
Administrative Assistant **MARGARET CLOSNER**
Art Business Office Secretary **NATALIE DeVORE**
Correspondence Writer **DON MOSTROM**

Technical Illustrator **KIM DOWNING.** Product Testing **GEORGE GRANSETH, BOB McFARLIN, DAVE HENDERSON.** Carving **HARLEY REFSAL.** Projects **CHUCK HEDLUND.**

Publisher **WILLIAM R. REED**
Director, Marketing/Advertising **CHRISTOPHER W. SCHRAFT**
Sales/Marketing Representative **JON BOOK**
Direct Response Marketing **GRACE CHUNG, BRENDEN DELANEY, VICTORIA PELCYGER**
Marketing/Advertising Services Manager **SIGRID ANDERSON**
Promotion Supervisor **RICK PALLISTER**
Marketing/Advertising Services Supervisor **PAT HENDERSHOTT**
Administrative Assistant **KATHY GARLAND**
Senior Product Manager **MARJORIE L. WILLIAMS**
ADVERTISING OFFICE: 1912 Grand Avenue, Des Moines, IA 50309. Phone 515/284-3785

Business Manager **JANET NELSON**
Circulation Manager **ALAN BRUSH**
Production and Technology Director **ROBERT C. FURSTENAU**

Chairman of Executive Committee **E. T. MEREDITH III**
President and Chief Executive Officer **JACK D. REHM**
Magazine Group President **WILLIAM T. KERR**
V.P., Publishing Director **CHRISTOPHER M. LEHMAN**
V.P., Circulation **HAL ORINGER**

Better Homes and Gardens® WOOD® (ISSN-0743-894X) is published nine times a year in January, February, April, June, August, September, October, November, and December by Meredith Corporation, 1716 Locust St., Des Moines, IA 50309-3023. Second-class postage paid at Des Moines, Iowa. Better Homes and Gardens trademark registered in Canada and Australia. Marca Registrada en México. **ONE-YEAR SUBSCRIPTION PRICES:** U.S. and its possessions $22; Canada, $34; other countries, $43. **POSTMASTER:** Send address changes to Better Homes and Gardens *WOOD* Magazine, P.O. Box 55050, Boulder, CO 80322-5050. ©COPYRIGHT MEREDITH CORPORATION 1994. ALL RIGHTS RESERVED. Canadian GST Reg. #R123482887.

WE CARE SUBSCRIPTION SERVICE: For change of address it is best for you to directly contact your local Postmaster who then will notify us. For any other service on your subscription, please write *WOOD* Customer Service, P.O. Box 55050, Boulder, CO 80322-5050 (enclose a recent label from your magazine for better service). Or you may phone toll-free **800/374-9663**. **EDITORIAL MAILING ADDRESS:** *WOOD* Magazine, 1912 Grand Ave., Des Moines, IA 50309-3379.

PRINTED IN U.S.A.

MPA

STEVE WALL LUMBER CO.
Quality Hardwoods and Woodworking machinery For The Craftsman and Educational Institutions

STEVE H. WALL LUMBER CO.
BOX 287 • MAYODAN, N.C. 27027
910-427-0637 • 1-800-633-4062 • FAX 910-427-7588

Ash	4/4	Select	2.10
Basswood	4/4	Select	1.50
Birch	4/4	Select	2.20
Butternut	4/4	1C	1.70
Cherry	4/4	Select	2.90
Hickory - Pecan	4/4	Select	1.80
Mahogany (Genuine)	4/4	Select	2.90
Maple (Hard)	4/4	Select	2.30
Maple (Soft)	4/4	Select	1.70
Poplar	4/4	Select	1.45
Red Oak	4/4	Select	2.25
Walnut	4/4	Select	3.00
White Oak	4/4	Select	2.20
Cedar (Aromatic Red)	4/4	1C+Btr.	1.55
Cypress	4/4	Select	1.85
White Pine	4/4	F.G.	1.00
Yellow Pine	4/4	Clear	1.50

Above prices are for 100' quantities of kilndried rough lumber sold by the Bd. Ft. FOB Mayodan, NC. Call for quantity discounts. Other sizes and grades available.

UPS Specials

	$ 65.00
	$ 53.00
	$ 67.00
	$ 57.00
	$ 81.00
	$ 59.00
	$ 81.00
	$ 69.00
	$ 57.00
	$ 52.00
	$ 68.00
	$ 83.00
	$ 67.00
	$ 54.00
	$ 60.00
	$ 43.00
	$ 53.00

Above prices are 20 bd. ft.bundles of clear kilndried lumber 3"-10" wide • 3'-7' long (Random widths & lengths) Surfaced 2 sides or rough. Delivered UPS prepaid in the Continental U.S.

Mini Max by scmi
S45 18" Band Saw Special Sale Price $1399
Reg. $1590
FOB Mayodan
Call for best price on Mini Max Machines

Send $1.00 For Lumber Catalog

Your best projects

Deserve the best cuts

When your work requires absolute precision and quality cuts, there is no substitute for the Freud LU85 -- at any price.

The LU85 produces a flawless cut that requires no sanding. It eliminates chipping and will improve the fit, and beauty of your most demanding projects.

Only the award winning LU85 can give you this kind of performance, because no other blade is manufactured with the same care, strict tolerances and fine materials.

The exclusive long-life, titanium-bonded carbide tips are ground with special angles, and the laser-cut extra stiff plate is bonded with a thick layer of Teflon® using a special process. This allows the blade to glide through the wood and eliminates pitch build-up.

The LU85 is a precision cut-off saw, ideal for your mitre saw or table saw, for the cutting of natural woods, low pressure laminates and mouldings.

SIZE	TEETH	BORE
8"	64	5/8"
9"	72	58"
10"	80	5/8"
12"	96	1"
14"	108	1"
15"	108	1"

freud®
Precisely what you need.
218 Feld Ave. • High Point, NC 27264

TALKING BACK

Print this article

We welcome comments, criticisms, suggestions, and even compliments. Send your correspondence to: Talking Back, Better Homes and Gardens® *WOOD*® Magazine, 1912 Grand Ave., Des Moines, IA 50309-3379

Sources for thin plywood

Can you recommend a vendor for the ⅛" oak veneer plywood required for the "Bowfront Table" in the November 1993 issue?

—George Tracy, Murphreesboro, Tenn.

We found ⅛" oak plywood, as well as other thin and bendable plywoods in the catalogs of these retailers:

Boulter Plywood Corp.
24 Broadway
Somerville, MA 02145
617/666-1340

Constantine's
2050 Eastchester Road
Bronx, NY 10461
800/223-8087

Too fast can be rough on the lathe

In the article "Low Cost Lathes," in the October 1993 issue, the comment "We found this low speed handy only for boring with large drill bits" concerning the AMT 4370 lathe missed the purpose of the speed changer. The low speed of 275 rpm allows rough turning of 10" and larger diameter pieces of wood with a minimum of vibration. An out-of-balance turning block of this size spinning at the 500-550 rpm the article found "handy for turning large, out-of-round workpieces" will cause intense vibration in any lathe, and poses a safety hazard with some lathes.

—Scott Yeagley, American Machine & Tool, Royersford, Pa

Address correction

The address for Althor Products in the buying guide for "What a Show-off" display case in the January 1994 issue should be: 496 Danbury Road, Wilton, CT 06897. The phone number, 800/688-2693, is still the same. We apologize for any inconvenience this may have caused our readers.

Continued on page 8

SAVE BIG ON CLOSEOUTS & STOCK REDUCTIONS

if you can plug it in...we've got it!
ROCK BOTTOM PRICES ON ALL YOUR FAVORITE TOOLS

MAKITA
BO4510 Square Pad Sander 49
BO4530 Round Pad Sander 59
BO5000 Rand. Orbit Sander 66
LS 1030 10" Miter Saw 185
9.6 V Battery 26.50
7.2 V Battery 24.00
9.6 V Flashlight 39.00
3/8" Keyless Chuck 15.00

AEG
EZ1320 Cordless Screwdriver Kit 89
STSE380 Jig Saw 69
VS280 1/2 sheet sander 49

HITACHI
Clamp for C8FB $ 18.95
Small Piece Fence 12.95
60 Tooth Carbide Blade 39.95
C10FA 10" Miter Saw 299
C12FA 12" Miter Saw 314
TR6 Laminate Trimmer 91
TR12K Plunge Router w/case 183
NR83A Framing Nailer 379
NT45A 18 g Finish Nailer 274
NT65A 16 g Finish Nailer 317
N3824A 1" Roofing Stapler 329

DUOFAST
CN350SH Framing Nail Gun 299

DEWALT
DW682K Biscuit Joiner $225
DW704 12" Miter Saw 298
DW705 12" Compound 352
DW945K2 Cordless Drill w/2bat 168

TRU-GRIP

Clamp 'n Tool Guide		Back-to-Back Bench Clamp	
50C	$ 29.50	BB50	$ 45.95
36C	26.50	BB36	37.95
24C	22.50	BB18	31.95

SANDING BELTS
BOX OF 10
3X21 $7.99
3X24 $8.25
4X24 $9.75
JUMBO BELT CLEANING STICK $7.95

freud
5 pc Router Bit Cabinetset $158
90-100 15 pc 1/4"Shank Bit Set 159
91-100 13 pc 1/2"Shank Bit Set 179
92-100 26 pc 1/4"Shank Bit Set 299
LU85M010 10" 80T Finish 58
LU84M011 10" 50T Combo 39
LM72M010 10" 24T Rip 37
LU85M015 15" 108T Finish 105

NEW from Freud
SD508 8" Super dado 189
EDS132 13.2 V Cordless 228
EDS120 12V Cordless 198

SENCO FASTENING SYSTEMS — NAIL GUNS
not available in all areas
SFN1 1"-2" Finish Nailer 289
SFN2 1 1/2-2 1/2 Finish gun 359
SLP20 Pinner 5/8-1 5/8" 262
SKS 1/4" Crown Stapler 259
SFN40 Finish $369
1-1/4" to 2-1/2" Finish nails

Emglo
AM39HC4V 3/4 HP- 2 tank 288
AM78HC2 1 1/2 HP-1 tank 279
AM78HC4V 1 1/2 HP-2 tank 299
AM99HC4V 2 Hp- 2 tank 368
AM78DOLHC4V
New! Oilless1 1/2 HP-2 tank 299

7pc Forstner Bit Set your choice
7pc Countersink Set
7pc Bradpoint Set $17.95

Milwaukee
0564-1 Cordless Drain Cleaner 192
3300-1 Rt Angle Drill 188
5392-1 3/8" Hammer Drill 126
6368 7 1/4" Circ.saw Kit 137
6490 10" Miter Saw w/60t Blade 264
6528 VS Super Sawzall 164
6767-1 Screwdriver Kit 134
8980 Heat Gun Kit 91
6535 Dual range VS Sawzall $129

SMARTLEVEL
SL224 2' economy Level $ 54
PR24S 2' Pro Level w/case 88
PR48S 4' Pro Level w/case 105

STABILA
LEVELS - Hand holes. Two vertical vials. Two milled faces. Yellow coat.
2464 24" $ 39
2469 36" 42
2467 48" 49
2501 10" POCKET LEVEL 25
2699 6 ft —3vial 99
2700 8 ft 6" —3vial 115
2701 8 ft —3vial 125

Panasonic
EY6100EGK
NEW ! PREDATOR 12 V CORDLESS DRILL
15Minute Charge $199
EY6100CRKW *PREDATOR*
1 Hour Charge w/2 Batteries 189
EY571B 9.6V Cordless Dril 119

LARGE 2'X4' ROUTER MAT $7.95

PORTER+CABLE
9690 1 1/2 hp Router w/case $145
100 7/8 hp Router $ 103
312 Offset Trimmer 159
314 4-3/8" Trim Saw 136
9314 Trim Saw w/ Case 147
315-1 7 1/4" Circular Saw 117
9315-1 Saw w/Case 137
351 3x21 Belt Sander 147
352 3x21 BeltSander w/bag 152
360 3x24 BeltSander w/bag 189
361 3x24 BeltSander 184
362 4x24 BeltSander w/bag 197
363 4x24 BeltSander 189
410 Underscribe Router 149
503 3x24 BeltSander w/bag 348
504 3x24 BeltSander 338
505 1/2 Sheet Sander 118
550 Pocket Hole Cutter 184
555 Biscuit Joiner 164
556 Biscuit Joiner w/adj fence 172
6931 Plunge Base 77
695 Router Table&Motor 217
5116 16" Dovetail Jig 253
7116 24" Dovetail Jig 294
7334 5" R.O. Sander 119
73333 Dust Kit for R.O.Sander 23
7536 2-1/2 Hp Router 196
7537 2-1/2 Hp D-handle Rt 206
7538 3 1/4 hp Plunge Router 227
7539 VS Plunge Router 261
9118 Door Plane Kit 202
9629 Recipro Saw 147
59381 Hinge Mortise Jig 165
97310 Trimmer kit 192
9853S 12V Cordless-2 batt 179

CONSTRUCTION MASTER III
The world best feet-inch-metric-fraction calculator. Solve rafters, hips, valleys, stairs
$ 69

RYOBI
OSS450 Spindle Sander $174
AG1200V Heat Gun $ 39
AP10 10" Planer 379
AP10 Replacement Blades 24.95
BS900 NEW! 9" Band Saw 173
BT3000 Table Saw 529
DS1000 Detail Sander 39
JP155 6" Planer 299
JM100K Biscuit Jointer 209
QS1000 Quick Stand 52
R50K Trimmer 2 base Special 99
R70K Trimmer 2 base Special 99
RA202 8" Radial Arm Saw 388
RE600 3hp Plunge Router 209
RS112 Random Orbit Sander 54
S550 Finish Sander 53
SC160 Scroll Saw 134
TFD170-2 9v Cordless Drill-2 bat 157
TFD220-2 12v Cordless Drill -2 bat 172
TR90U Laminate Trimmer 85
TS251 10" Miter Saw 169
TS254 10" Miter Saw 198
TS260 10" Comp Miter Saw 238
TS380 15" Miter Saw 369

STIK-ON SANDPAPER

Grit	10 yards 4 1/2" roll	pieces	'GOLD'C weight discs 6"round	5"round
60	N/A	100 pc	19.95	15.95
80	10.95	100 pc	18.95	13.95
100	9.85	100 pc	17.95	12.95
120	9.85	100 pc	17.95	12.95
150	9.85	100 pc	17.95	12.95
180	9.85	100 pc	17.95	12.95
220	9.85	100 pc	17.95	12.95

AIRY®
NAIL GUNS
241SK 18 G 3/8-1-1/2"Kit 105
250SK 18 G 3/4- 2" Kit 179
350K 16G 3/4- 2" Kit 198
565T 1- 2-1/2" Finish Gun 209
626SK 1/4"Crown 1" Stapler Kit 115
635SK 1/4"Crown 1-3/8" Stapler 185

BOSCH
1587VSC $168
NEW VS Orbital Jigsaw w/clic
1884VSC NEW! Barrel Grip 163
1370DEVS6" R.O. Sander 218
3054VSRK NEW! Cordless drill 159

BLACK&DECKER
1703 10" Miter Saw 184
2670 1/2" Impact Wrench 144
2721 1.5 hp Router 12" collet 139
2750 Mini Grinder 82
3379K Biscuit Joiner 225
3339 3hp VS Plunge Router 265
3680 12" Compound Saw 349
3338 Plunge Router $239

DELTA
37-070 $247
6" Table Top Jointer
11-950 8" bench Drill Press $ 143
14-650 Hollow Mortise Chisler 288
22-540 12" planer 397
28-180 10" band saw 164
31-050 1" belt sander 78
31-080 1" Belt 6" Disc Sander 93
31-340 1" Belt 8" Disc Sander 203
31-460 4" Belt 6" Disc Sander 128
32-100 Plate Joiner 248
36-040 8" Compound Miter 154
36-090 Sidekick 10" Miter Saw 213
36-220 10" Compound Miter 234
40-150 15" Scroll Saw 115
40-560 16" Scroll Saw 177
40-640 20" Scroll Saw 304

BIESEMEYER
T50 50" Commercial Fence 297
HS52 50" Home Shop 237
HS40 40" Home Shop 222
TABLE SAW INSERTS 9.95

USE VISA, MC, DISCOVER
FREE SHIPPING on orders from this add over $50, Within continental 48 states, HI and AK extra.
Sales limited to stock on hand.

ABBEY TOOLS
1-800-225-6321

1132 N. MAGNOLIA, ANAHEIM CA. 92801
OPEN 8-5:30 WEEKDAYS 9-2 SATURDAY
Calif. residents add 7.75% state sales tax
SERVING YOU FOR OVER 15 YEARS
Prices subject to change without notice.

RBI Precision Woodplaner Specs

RBI woodplaners are money-saving, space-saving tools for the serious woodworker and professional craftsman.

A Few Reasons Why RBI Woodplaners Are The Best You Can Buy.

Patented Quick Change Head — converts machine from planer, to molder, to sander, to saw in just minutes.

Planetary Belt Drive — operates trouble-free with no chains or sprockets to trap chips. Feed rate automatically adjusts to cutterhead speed ensuring professional-quality results everytime.

Power Infeed/Outfeed Rollers — made of non-marking, molded rubber to safely feed wood, leaving no nicks, cuts or grip marks.

High-Torque Motor — continuous rated heavy-duty commercial quality motor powers both cutterhead and feed rollers.

High-Speed Bearings — are maintenance free, self-aligning, factory-sealed and permanently lubricated.

Made in USA — of heavy-gauge steel by American craftsmen, many of whom are skilled woodworkers just like you.

RBI Woodplaners Are The Most Versatile, Affordable You Can Buy.

"RBI's 5 HP motor is capable of sustaining a continuous load for a longer period of time than the other motors on the other two models tested"
—*Wood*® magazine product review of RBI, Woodmaster & Belsaw Planers—August 1993

It's true. Over 500,000 have been sold since we built our first woodplaner in 1929. Experienced professionals and serious do-it-yourselfers associate RBI woodplaners with one thing:

Quality, Affordability...Guaranteed.

No other line of woodplaners in the marketplace gives you this degree of versatility. RBI woodplaners are heavy-duty precision woodworking systems, complete in just one compact tool!

RBI woodplaners will save you time and money.

The **Planer, Molder, Sander** and **Saw** functions will produce the top-quality, professional results you demand. Produce **curved** or **straight molding, eliminate tedious hand sanding, gang-rip,** and **plane** to a silky-smooth finish.

If woodworking is your hobby, you'll never have a more versatile tool. If it's your business, you'll never have a more profitable one. With an RBI woodplaner, you'll create the projects you've always dreamed of building.

Imagine What RBI Woodplaners Can Do For You.

- *Create custom cabinets or fine furniture*
- *Customize existing woodworking for the home addition you've been planning*
- *Finish and dimension rough stock*
- *Turn rough lumber into beautiful, expensive molding*
- *Produce uniform surfaces on long stock*
- *Plane lumber up to 20 inches wide in just seconds*
- *Feed stock at 11 feet per minute*
- *Create hundreds of ornamental moldings from hard or soft woods with standard or customized knives*
- *Create beautiful and ornamental picture frames for yourself or resale*
- *Eliminate distortions caused by tedious hand sanding*

Call 1-800-487-2623 To Order *or* To Get Your FREE Catalog.

Our Guarantee To You
30-Day Money Back Guarantee
3-Year Warranty
(1 Year on Motor)

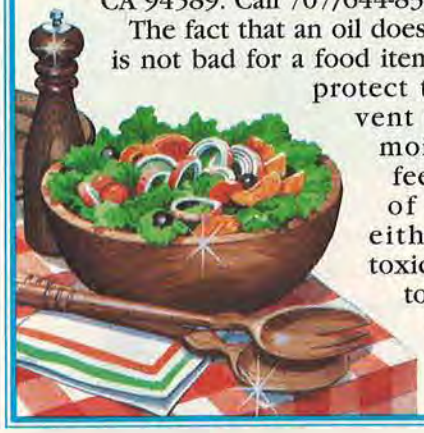
rbindustries
The American Tool Manufacturer
1801 Vine St. • PO Box 369
Harrisonville, MO 64701 D109

TALKING BACK

Continued from page 6

More on food-safe finishes

The article on food-safe finishes in the October 1993 issue was very informative, and I commend you on trying to make everyone more aware of toxic chemicals and finishes. As manufacturers of wooden food-related products, our opinion varies slightly from the article. On our products we use a finish called Block Oil, a completely safe, natural, and non-toxic combination of oils and waxes blended specifically for food surfaces. You can order a 12-oz. bottle of this finish by sending $5.95 plus $2.00 shipping to: 'Laska Stuff, 3787 Broadway, American Canyon, CA 94589. Call 707/644-8303.



The fact that an oil does not dry completely is not bad for a food item, as it continues to protect the wood and prevent the absorption of moisture. We do not feel the introduction of a drying agent, either toxic or non-toxic, can be beneficial to the wood.

—Steve Sparks, 'Laska Stuff, Rochester, Mich.

I can still do it!

I'm 69. The article written by Larry Clayton about Bill Boian, age 101, leads me to believe I have more good years than I thought to pursue my woodworking hobby. I took my first manual art class in 1941, and I was the first girl to enroll.

—Pauline Groseclose, Gautier, Mo.

Tung oil is food-safe, too

There are several pieces of misinformation in the article "Food-Safe Finishes" in the October 1993 issue. I feel that comments about any food-safe finishes should be based on material from the Food and Drug Administration and *not* from manufacturers and vendors of competitive products.

The FDA approves tung oil for food-contact applications and as a binder for pills. In that second use, it is directly ingested. There are very few finishes that are safe for food contact, and it always troubles me when people are frightened away from one of the few finishes available.

—Leonard G. Lee, Lee Valley Tools, Ottawa, Ont.

In response to your letter, Leonard, we spoke with Marie Falcone of the FDA's Small Manufacturer Assistance Branch. She told us that tung oil (China wood oil) is indeed an FDA-approved finish for wooden items used with food.

"EVERYONE HAS FURNITURE"

OFFICES, HOTELS, RESTAURANTS, HOMES

Wood furniture is easily damaged during manufacturing, warehousing, transporting or by daily wear and tear. Furniture Medic restoration techniques can save this furniture for a fraction of replacement or refinishing costs. We provide equipment, specialized training and territory.

Your investment starts at **$11,500***. * See Prospectus for details.

Call Furniture Medic® today for more information.
We accept calls 24 hours a day, 7 days a week.
(800) 877-9933 or **(404) 361-9933 / Fax: (404) 363-0554**

FURNITURE MEDIC®
"the prescription for damaged furniture!"™

Master and Unit Licences Available Worldwide.

Like Having A Lumberyard Right in Your Shop!

NOW! Plane, Mold, Sand & Saw... with Infinitely Variable Power-Feed!

Put this versatile power-feed tool to work in your own shop. See how fast it pays for itself! Quickly converts low-cost rough lumber into valuable finished stock, quarter-round, casing, base mold, tongue & groove . . . all popular patterns. . . even custom designs!

NEW! Variable Feed Rate

Now, just a twist of the dial adjusts your planer from 70 to over 1000 cuts-per-inch! Produces a glass-smooth finish on tricky grain patterns no other planer can handle. Converts to Drun Sander or Gang Rip Saw in under five minutes.

FREE FACTS! 1-800-821-6651, ext. PW69
Woodmaster Tools, Inc., Dept. PW69
1431 N. Topping Ave., Kansas City, MO 64120

Hunting the elusive 7474

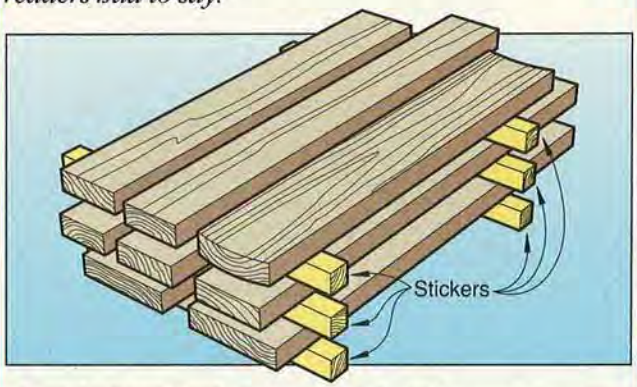
Your February 1993 issue featured an article "Random-Orbit Sanders". I've tried to buy the Black & Decker 7474 sander, partially because of its pad-braking system, but have not been able to find one. Can you help me with this?

—David Cutshall, Pitcairn, Pa.

For an answer, Dave, we contacted Anita Galloway of Image Dynamics, the public relations firm for Black & Decker. Anita said the 7474 sanders are available on a limited basis, usually in hardware stores, but for the most part have been replaced by the Black & Decker Quantum line of sanders. The Quantum models B5100 (single speed) and B5200 (variable speed) are similar to the 7474 sander, but are colored green instead of black. Both models include the pad-braking system that you found attractive in our test report.

Lumber sticking revisited

We received a number of letters concerning the article "A Lumber Sticker in the Family Tree," in the Ask WOOD® department in our October 1993 issue. Our research showed that a lumber sticker is one who grades lumber using a scaling stick. Here's what two readers had to say:



The job described in your article is known as a lumber scaler here in the northeast. A lumber sticker's job is to stack lumber in the mill yard. The boards are stacked in layers with narrow strips of wood or "stickers" placed between the layers to allow air to circulate while the wood dries.

—Donley Goodridge, Craftsbury Common, Vt.

A "sticker man" is a man that stacks lumber by layering the boards with narrow sticks placed between the layers. The lumber is stacked by species and grade, in piles up to twelve feet wide and as high as can be reached. Assure Jimmy Smith that his great-great granddad had to be good at his job or he would not have had it. It was a job that called for a lot of skill and judgment.

—Carl Mowrey, Wardsboro, Vt.

Econ-Abrasives
WE MAKE ABRASIVE BELTS ANY SIZE, ANY GRIT!

Standard Abrasive Sheets

CABINET PAPER

	50/pk	100/pk
60D	$15.00	$27.00C
80D	14.00	25.00C
100 thru 150C	13.00	23.00C

FINISHING PAPER

80A	$ 10.00	$17.00C
100 thru 280A	9.00	15.00C

NO LOAD PAPER(white)

100 thru 400A $11.00 $19.00C

"C" = 100 SHEETS

Velcro® Vacuum Discs
8 Hole pattern for Bosch sanders

Dia.	Grit	Price
5"	60	$ .48ea
5"	80	.46
5"	100 thru 320	.45

OTHER PRODUCTS

*Wide Belts*Rolls*Flap Wheels
*Pump Sleeves*PSA Discs
*Router & Wood Bits*Wood Glue

ABRASIVE BELTS
PLEASE SPECIFY GRITS

1X30	$ .73 ea	3X24	$ .84ea
1X42	.73 ea	3X27	.87 ea
1X44	.73 ea	4X21 3/4	.96ea
2 1/2X16	.77 ea	4X24	.99ea
3X18	.78 ea	4X36	1.20ea
3X21	.81 ea	6X48	3.14ea
3X23 3/4	.84 ea	2 1/4X80	2.94ea

OTHER SIZES ON REQUEST

HEAVY DUTY SPRING CLAMPS
Clamps come w/PVC tips and grips.

Size	Price
4"	$1.75 ea
6"	2.25
8"	3.50

JUMBO ROUTER PAD(24" x 36")
It will not allow small blocks of wood to slip out under router or sanding applications. ROUTER PAD ONLY $8.95ea.

JUMBO BELT CLEANING STICK ONLY $8.80

*MasterCard, VISA, C.O.D. or Check
*SATISFACTION GUARANTEED!!!
*CALL FOR *FREE* CATALOG
- TX & NV add appropriate sales tax
- Continental U. S. shipping add $5.50

Econ-Abrasives
P. O. Box B865021
Plano, TX 75086
(214)377-9779

TOLL-FREE ORDERING LINE (800) 367-4101

TRANSPOWER
FOR EXPRESS NEW CATALOGUE CALL
1-800-654-7702

TS200HD

HP500

SUPER HEAVY DUTY WOODWORKING EQUIPMENTS

200HD	10" SUPER HEAVY DUTY TABLE SAW, 3HP	$895
200HA	10" SUPER HEAVY DUTY TABLE SAW, 3HP	$740
MS250	10" TABLE SAW, 1½HP	$345
SB800	20" BAND SAW, 3HP	$1190
SB700	18" BAND SAW, 2HP	$595
SB600	16" BAND SAW, 1½HP	$475
SB500	14" BAND SAW, ¾HP	$230
AP200A	20" AUTO PLANER, 2 SPEEDS, 3HP	$1245
AP400	24" AUTO PLANER, 3 SPEEDS, 7HP	$2590
AP650	15"X8" AUTO PLANER, 2 SPEEDS, 2HP	$695
AP800	16"X8" AUTO PLANER, 2 SPEEDS, 3HP	$695
AP150	12"X6" AUTO PLANER, 2HP	$345
SP980	TILTING SPINDLE SHAPER, 1¼" & ¾", 3HP	$1250
HP500L	3HP SHAPER, 1" ¾" ½" SPINDLES	$740
HP500	3HP SHAPER, 1" ¾" ½" SPINDLES	$695
SP860	3HP SHAPER, 1" ¾" ½" SPINDLES	$840
JT650	6" LONG BED JOINTER, 1HP	$250
JT860	8" HEAVY DUTY JOINTER, 1½HP	$615
1200	12" HEAVY DUTY JOINTER, 3HP	$1795
747	DUST COLLECTOR, 650 CFM, 1HP	$168
2000	DUST COLLECTOR, 1250 CFM, 2HP	$285
3000	DUST COLLECTOR, 1850 CFM, 3HP	$325
RF150	AUTO FEEDER, ¼HP	$385
RF250	AUTO FEEDER, 1HP	$640
SD800	90" EDGE SANDER, 2HP	$420
SD1200	123" EDGE SANDER, 2HP	$980
DB600	AIR DRUM SANDER, 1 HP	$285
	..... AND MORE.	

C.P. Tools, Inc. • 14257 E. Don Julian Rd., Industry, Ca. 91746 818-333-7701

Print this article

EARN CASH, PRIZES FOR YOUR TOP SHOP TIP

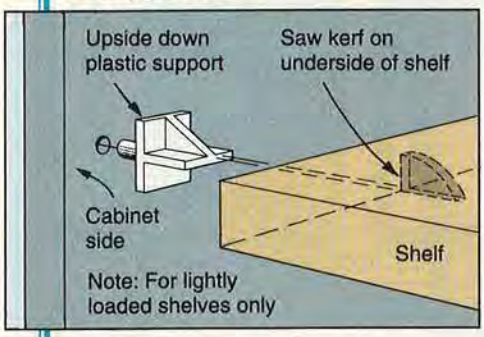
Do you have a great shop tip (or two) you'd like to share with other *WOOD*® magazine readers? For each published submission, you will get at least $40 from *WOOD* magazine (as much as $200 if we devote a page or more of space elsewhere in the magazine to your idea). You also may earn a woodworking tool if we select your idea as the Top Shop Tip for the issue.

We try not to use shop tips that have appeared in other magazines, so please send yours to only one. *We do not return shop tips.* Mail your tip(s), address, and daytime phone number to:

Top Shop Tip
***WOOD* Magazine**
1912 Grand Ave.
Des Moines, IA 50309-3379

Bottom's-up solution for sliding shelves

Flat shelf supports keep your shelves from falling down, but they don't always stop them from sliding forward..



TIP: Turn one of your shelf supports upside down and cut a saw kerf in the shelf that will accept the angled brace on the bottom of the support. Slip the kerf over the inverted brace and the shelf will stay put. To avoid overloading the inverted shelf support, use these only on shelves that are lightly weighted.

—Alan Wolke, Phillipsburg, N.J.

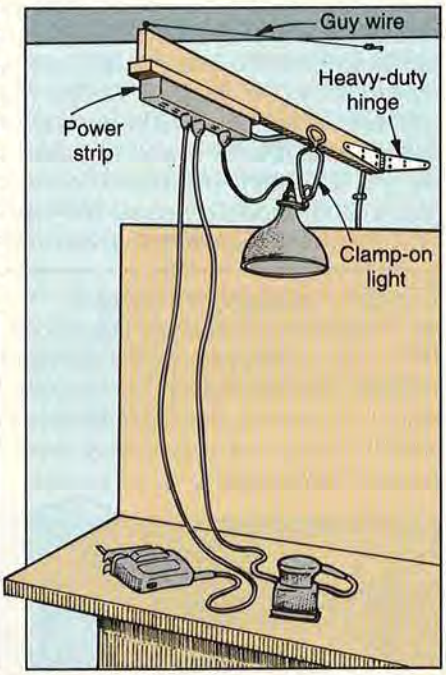
Boom provides power right above your bench

Electrical cords that get draped across a benchtop are ripe for damage, and such a situation could easily result in a serious electrical shock.

TIP: If you plug in your tools above the bench instead of behind it, you won't have to drag cords across the work surface. For an overhead outlet that goes where you need it, fashion a boom, like the one shown, from 1×4" and 1×2" boards. It should be long enough to extend from the back of the bench to slightly past the bench front. Attach a power strip to one end, and hinge the other end to the wall behind the bench. For a long boom, add a guy wire from the free end of the boom to a point on the wall above the hinge. Rout a groove for the power cord, to avoid damage. Add a clamp-on reflector lamp for a simple, adjustable worklight.

—G. E. Wallauz, Painesville, Ohio.

For his terrific tip, G. E. will receive a Black & Decker Quantum variable-speed random-orbit sander, shown *above*.

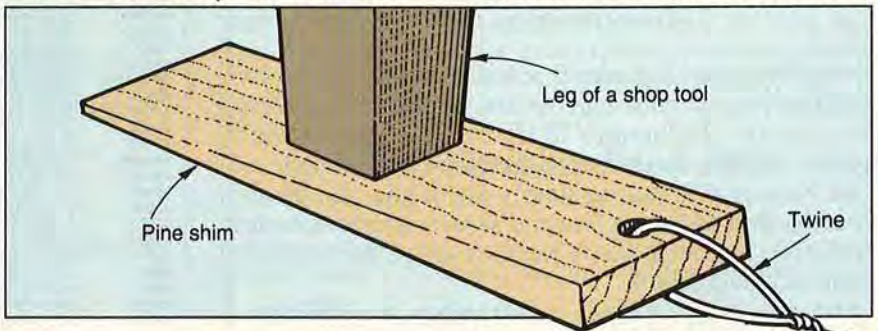


Shims steady tools on a wavy workshop floor

You rarely find a garage or basement with a perfectly smooth and flat concrete floor. And for most of us, that's the workshop floor. If you move your equipment around at all, you can spend a lot of time trying to steady it in each new location.

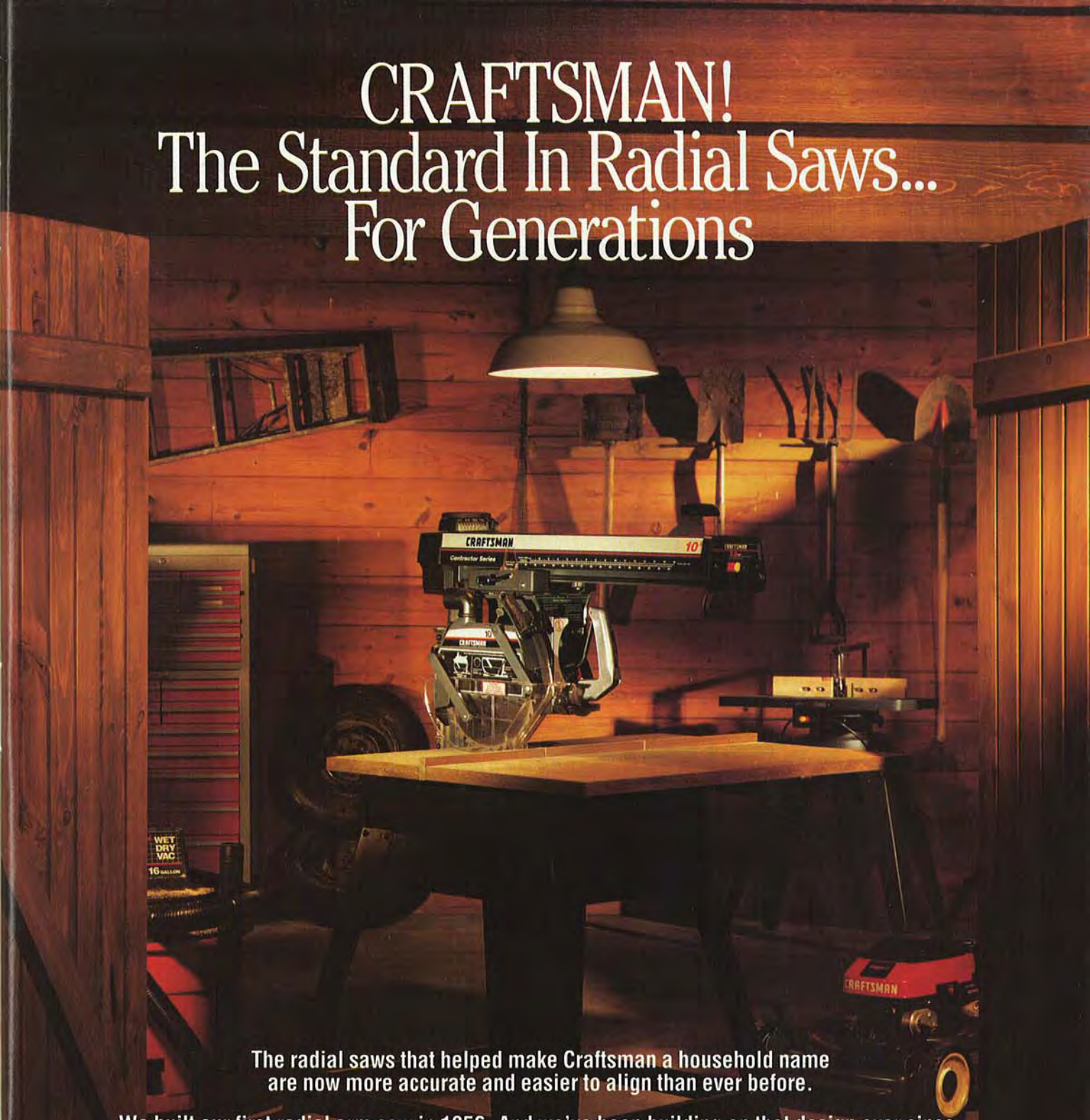
TIP: Buy a package of pine shims, the kind lumberyards and home-centers sell for installing windows and door jambs. Drill a hole in the thicker end of each shim and tie a loop of twine through it. Hang one of these modified shims on each piece of equipment. Now, when you move a tool, you can steady it instantly by sliding the shim under the wobbly leg.

—Michael Tamarkin, O. D., York, Pa.



Continued on page 12

CRAFTSMAN!
The Standard In Radial Saws... For Generations



The radial saws that helped make Craftsman a household name are now more accurate and easier to align than ever before.

We built our first radial arm saw in 1956. And we've been building on that design ever since. Our newest radials incorporate improvements such as our revolutionary new blade guard that will make Craftsman an industry leader for generations to come.

You can crosscut, rip, miter, or bevel cut, and with easy to install accessories, you can create dados and decorative molding, route, drill, sand or plane. No other tool lets you accomplish so much with such ease or accuracy.

The new Craftsman radials are on display at your nearby Sears store.

CRAFTSMAN®

Only at Sears

TIPS FROM YOUR SHOP (AND OURS)

Continued from page 10

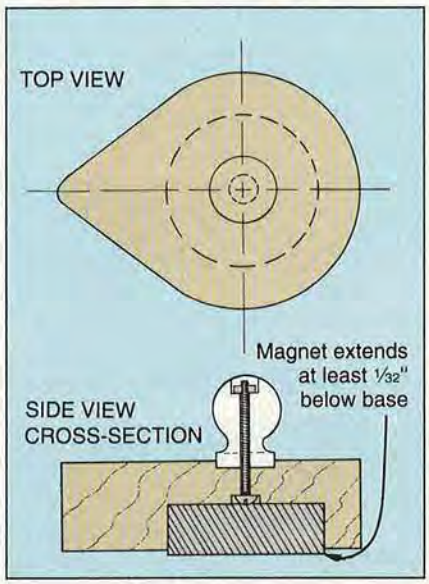
Magnetic guide points way to better bandsaw cutting

Setting up and adjusting the fence is a lot of bother when you just want to make one quick cut with your bandsaw.

TIP: Make a handheld guide like the one shown for fast, accurate bandsawing parallel to an edge. Cut the guide body from hardwood stock 1 1/16–1 1/2" thick. Bore a hole into the bottom where shown to receive a strong magnet—one salvaged from a 10-12" speaker, for instance. Bore deep enough that the magnet will stand out from the bottom surface about 1/32". Add a knob or handle, if desired. Epoxy the magnet into place. If your bandsaw has an aluminum table, leave the bottom of the guide flat and adhere a piece of non-skid router mat to it.

To use, start bandsawing on your cutting line. Then hold the point of the guide against the stock adjacent to the blade to maintain a constant cutting width.

–C. R. Alexander, Topeka, Kan.



CASCADE TOOLS, INC.

Workshop Accessories

CHECK IT OUT!

PLATE JOINER KIT DW682K

A DeWalt Classic! This 6.5 amp beast includes preset depth stops for #0, #10, and #20 biscuits, integral fence with rack and pinion height adjustment and much, much more.

PART No. C3347 ONLY $229.95

NEW

SUPER NAILER KIT

Take on any light carpentry or casing job the way the pros do—with a pneumatic nailer. The Super Brad Nailer accepts brads from 5/8" to 9/16" long. **Kit Includes:** Brad Nailer, 5000 18 ga. Nails, 1 oz. Oil Bottle, 3mm, 4mm and 5mm Allen Wrenches, Manual and Case.

PART No. C3328 ONLY $139.95

NEW

CABINETMAKER'S RUB COLLAR SETS

Set "A" includes: 1 5/8", 1 7/8", 2", 2 1/8", 2 3/16", and two 1/2" straight bushings. Set "B" includes: 2 1/4", 2 5/16", 2 3/8", 2 7/16", 2 1/2" and two 1/2" straight bushings.

SET "A"—3/4" BORE
PART No. C3100 ONLY $ 79.00
SET "B"—3/4" BORE
PART No. C3102 ONLY $ 99.00

NEW

1" x 42" BENCHTOP SANDER

Features a 1/2 HP motor, adjustable tables and a removable belt platen for polishing and contour sanding. A 6" disc and a 1" belt make it the perfect benchtop machine for any hobbyist. Belt sander pivots 90° for horizontal use.

Sanding belts & discs available.

PART No. C3304 ONLY $119.00

NEW

NEW

BROSET™ PRECISION STOP BLOCK

Now you can stop relying on scrapwood and C-clamps for accurate, repeatable crosscuts. The Broset is easy to use and dead accurate!

PART No. C3232 ONLY $ 39.95
6' RIGHT-TO-LEFT TAPE
PART No. C3233 ONLY $ 7.95
6' LEFT-TO-RIGHT TAPE
PART No. C3234 ONLY $ 7.95

NEW

RIFFLER RASP SET

This 8 pc. set of double-ended Riffler Rasps is perfect for filing and carving duck decoys, gun stocks, knife handles and other intricate work. Save big over expensive European versions of this set!

PART No. C3338 ONLY $13.95

NEW

TENON CUTTERS

Cut perfectly round and smooth tenons, plugs, and dowels with our multiple spur Tenon Cutters. Designed for use on drill presses, lathes and horizontal boring machines.

3-PIECE SET (3/8", 1/2", 5/8")
PART No. C3339 ONLY $ 79.95
5-PIECE SET (3/8", 1/2", 5/8", 3/4", 1")
PART No. C3340 ONLY $129.95

NEW

CARBIDE-TIPPED BRAD POINTS

Drill clean flat-bottomed holes in all types of wood. Carbide-tipped bits ensure long life. Ideal for doweling and precision boring. **7 piece set includes:** 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", and 1/2".

PART No. C3094 ONLY $29.95

94C-105

ORDER 24 HOURS A DAY!

Call for your free catalog today.

1-800-235-0272 EXT. 45

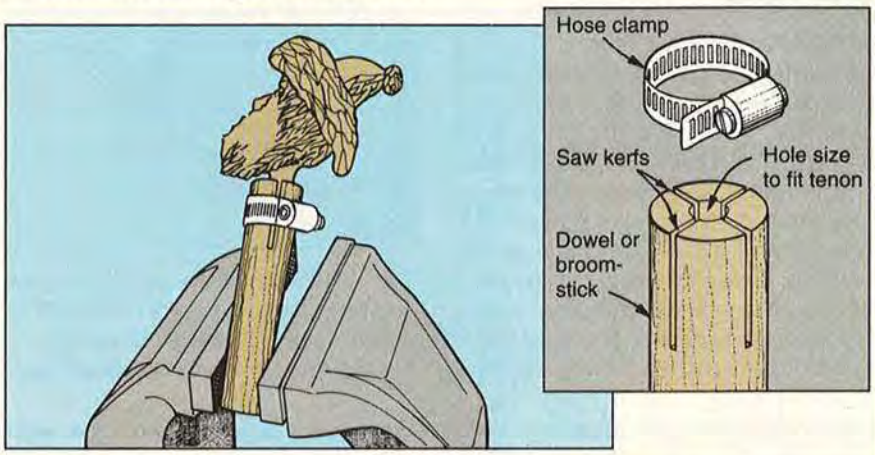
TOLL FREE FAX: 1-800-392-5077

A broomstick collet holds small carvings

The main problem in carving small pieces, such as the head of a two-part figure, is hanging onto the workpiece.

TIP: Start by carving a round tenon on the workpiece (this can be the tenon that joins the carving parts or a temporary one). Next center a hole the size of the tenon and about 1½" deep on the end of a 6-8" length of broomstick or 1-1½" dowel rod. With a bandsaw or scroll saw, cut two kerfs across the broomstick's diameter, 90° apart and as deep as the hole. Slide the tenon into the hole and tighten a hose clamp around the end to secure the carving. Now, you can hold the broomstick collet in a vise or in your hand.

—Albert Heaton, Granite City, Ill.

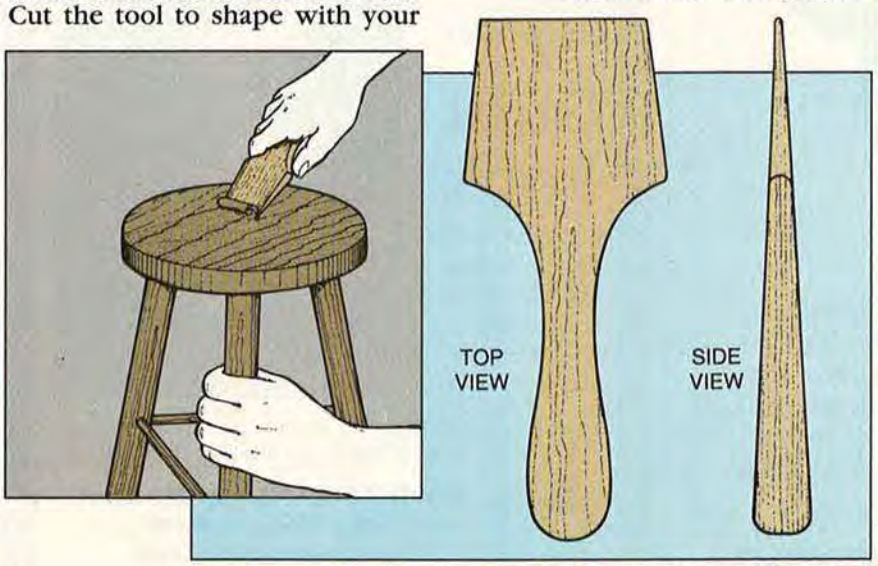


Shop-made wooden scraper won't mar refinishing job

Using a steel putty knife to scrape off stripper-softened paint or other finishes can scar the furniture you're trying to refinish.

TIP: Make a scraper like the one shown below from ¾" pine or some other soft-textured wood. Cut the tool to shape with your scrollsaw or bandsaw and then taper it to an edge by sanding. Round over the handle edges for comfort. The wooden scraper won't nick the wood you're stripping, and the corners won't dig in as you lift off the old finish.

—Sam Stucki, St. George, Utah



Continued on page 14

"A good, strong way to join corners is with a finger or box joint."

Tune in to The New Yankee Workshop on PBS to see what Norm's up to this week. Nationally funded by

THE POWER OF THE PROS
DELTA
WOODWORKING MACHINERY

PORTER CABLE
PROFESSIONAL POWER TOOLS SINCE 1906

GREAT IDEA!

"This has to be the most attractive and practical way yet to cover a pickup bed."

A key locked roll-up hard cover that's weathertight.

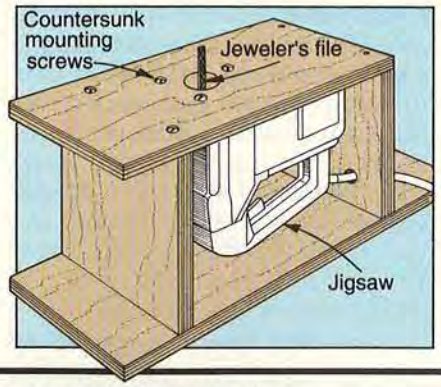
for free brochure on the
ROLL-TOP-COVER™
call or write: Pace-Edwards Co.
100 Commercial Street
Centralia, WA 98531
1-800-338-3697

Continued from page 13

Old sabersaw makes quick work of filing

Your old sabersaw still runs, but you'll probably never saw with it again because you enjoy your new one so much. It seems a shame to throw it away, though.

TIP: If you frequently file fretwork or other inside cutouts, that old sabersaw can help. Drill the blade holder to accept the tang of a small jeweler's file. Then, mount the saw in a simple stand built from scrapwood. Drill ¼" mounting holes in the saw's base to attach the saw to the stand with ¼" flathead machine screws. Countersink the mounting screws on the stand's top surface. Clamp the unit securely to the workbench, then make quick work of that tedious filing.

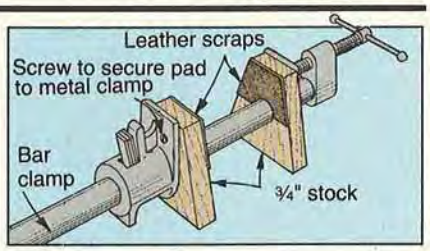


—Elliott Bogart, Tampa, Fla.

Protective pads stay put and support clamps, too

Pipe clamps will dig right into the wood unless you put some protection between the jaws and the work. Trouble is, you can't hold the pads in place, align the workpieces, and tighten the clamps with just two hands.

TIP: If you attach the clamp pads to the jaws, you won't have to fuss with them when your hands are full. Cut pads similar to those shown to fit your particular clamps. You want the large hole to fit the pipes yet allow free movement. Drill holes for #6 or #8 sheet-metal screws where indicated, and attach the pads to the clamp jaws. For further protection, glue a leather facing to the clamping area on the pad. The pad design shown offers a bonus, too: The wide bottom allows you to stand the clamps on a bench or sawhorses for easier clamping.



—Hayden C. Jones, Shenandoah, Iowa

Here's the one thing Belgians don't waffle on.

90 Minute Demo Video Available

The Robland X31 is as welcomed in European workshops as a home run in the World Series. We put together a 12" jointer, 12" planer, 10" table saw, 50" sliding table, and a shaper with a mortiser. No cheating. No compromises. Some 1100 lbs. of cast iron stability, with three separate 3HP motors. It stays put. It stays true. And it stays neatly in a little corner of your shop.

That's why Belgians call the Robland X31 The Intelligent One Man Shop. About the only thing you can't make on it is breakfast.

LAGUNA TOOLS
(800) 234-1976 (714) 494-7006
2265 Laguna Canyon Road, Laguna Beach, CA 92651

Better Homes and Gardens WOOD PLANS
ALL-TIME FAVORITE PROJECTS FROM THE EDITORS OF WOOD® MAGAZINE

Share the beauty of your treasured handiwork.

Order this plan to build a beautiful

Quilt Rack

Graceful design displays your favorite quilts and blends with nearly any decor.

To order plan and detailed instructions: Send your name and address plus $9.95 (shipping and handling included) to:

WOOD PLANS - Quilt Rack
P.O. Box 9255, Dept. WD-27
Des Moines, IA 50306

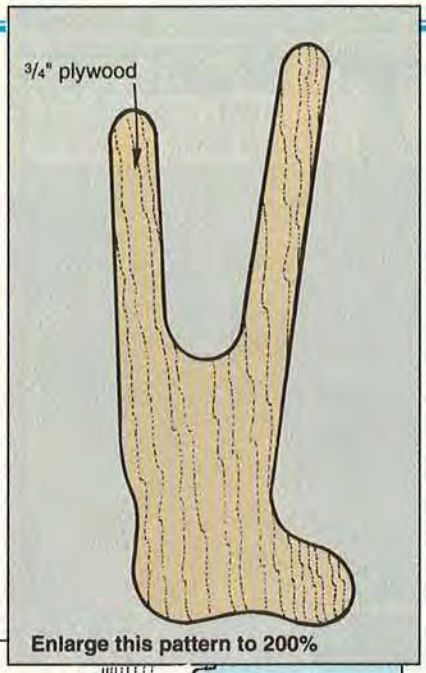
Allow 2-3 weeks for delivery. 100% money-back guarantee.

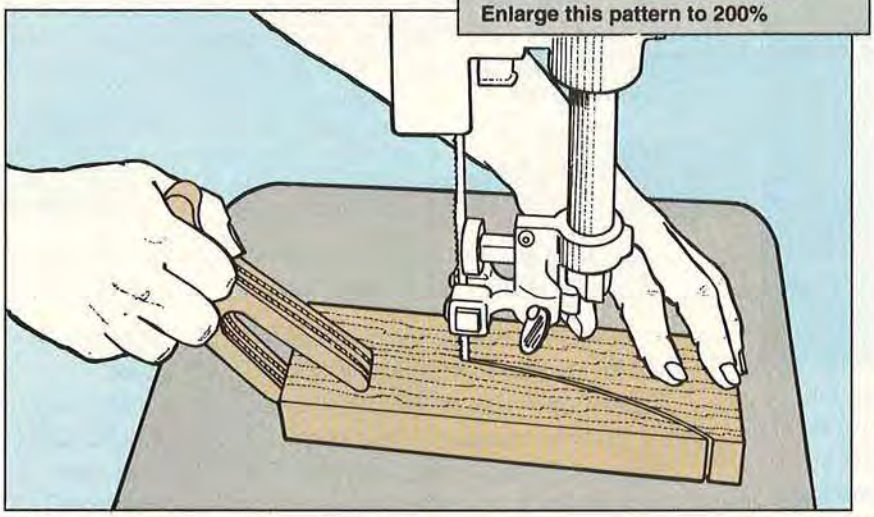
Keep cuts under control with a two-legged pushstick

A pushstick keeps your fingers way from harm, but sometimes you'd feel more in control if you had better contact with the wood. Bandsawing is one of those times.

TIP: Make a two-legged pushstick like the one shown at *right* for better bandsawing. Cut it from ¾" plywood. In use, push the workpiece with the short leg; hold it down and control its movement with the longer one.

—Clarence G. Searles, San Francisco



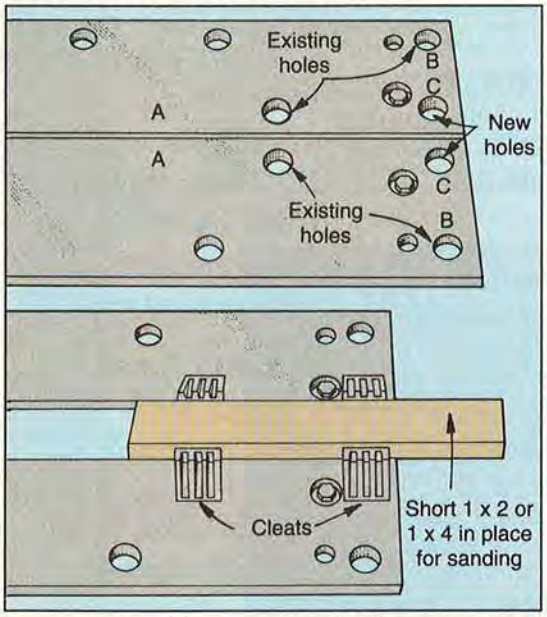


Extra holes help Workmate grab short, narrow work

Workmate portable workbenches can hold almost anything. But they have a hard time holding on to a short, overhanging piece of 1×2 or 1×4.

TIP: Drill an extra pair of holes, one in each Workmate jaw. Locate the new holes (C) in relation to existing holes A and B, where shown. Insert the standard Workmate dogs into holes A and C to take firm hold of stock that's short and narrow.

–Michael Covington, Athens, Ga.



Continued on page 17

"Use quality hardwood and your chair will last for generations."

Tune in to The New Yankee Workshop on PBS to see what Norm's up to this week. Nationally funded by

THE POWER OF THE PROS
DELTA
WOODWORKING MACHINERY

PORTER ✦ CABLE
PROFESSIONAL POWER TOOLS SINCE 1906

STAINED GLASS VIDEO & CATALOG

Improve the Looks and value of your home with:
- Entry doors & sidelights
- Kitchen cabinet inserts
- Tiffany lampshades

Save money and make it yourself - Delphi shows you how!

Make Your Own Custom Stained Glass...
The perfect way to get started in stained glass. Our 25-minute video covers all the basics: Scoring, breaking, foiling, and soldering. Filled with clear and simple instructions, hints, close-ups, and examples to help you craft your own stained glass windows, lamps, and more. VHS only.
#6149VW...$10.95 + $3.00 shipping/hand.

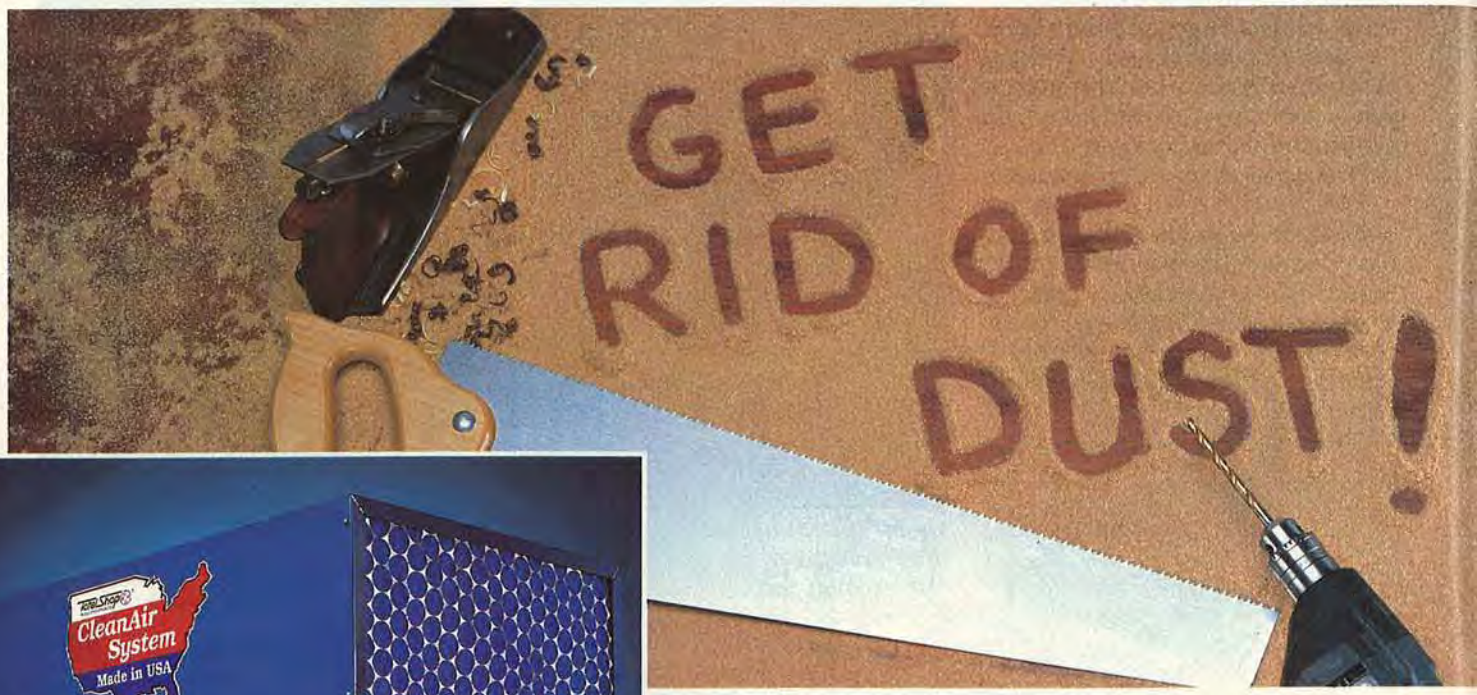
A $10.95 rebate is applied to your next order. If you don't wish to purchase, just return the video for a prompt refund, but keep the 80-page color catalog.

To Order - Call Toll Free: 1-800-248-2048

DELPHI STAINED GLASS
2116 E. Michigan Ave.
Lansing, MI 48912

Now you can breathe easier with the CleanAir System from TotalShop®

WORLD OF WOODWORKING



How much of your time is wasted on cleaning up the mess in your shop or work area caused by airborn dust? Whether you operate a commercial facility or just a small home shop, the ***CleanAir System*** from ***TotalShop*** can help rid the environment of the unhealthy and troublesome dust, and allow you to spend more time on your projects and less time cleaning up.

The ***CleanAir System*** effectively captures up to 97% of the particles in the air by moving 260 cubic feet of air (490 cubic feet for the heavy duty model) through its unique 3-stage filtration system in just one minute.

The size of dust particles is measured in microns. Just to get an idea of how small these particles are, tobacco smoke is rated at .5, or 1/2 micron. Testing has shown that the ***CleanAir System*** has up to a 97% efficiency rate of removing 5 micron particles and an 80% rate of efficiency in removing particles as small as 1 micron. In contrast the typical shop filtration units available can capture only those particles rated at 30 microns or larger.

Ideal for

*** Woodworking * Ceramics * Print Shops**
*** Concrete Plants * Foundries * Schools**
*** Auto Body Shops * Photo Studios**
*** Anywhere Dust is a Problem**

And here are just a few more advantages the ***CleanAir System*** has over the competition...

* Needs no outside venting * Effectively cleans the air in an area up to 4000 cubic feet * Totally quiet operation * Has no effect on existing room temperature * Runs on standard house current * Compact size (25"x 13"x 40") fits almost anywhere * Heavy gauge steel cabinet with mounting holes * Contains approximately 18 square feet of filter material * Easy filter replacement * Also available in heavy duty model * 30 day money back guarantee * One year warranty on all parts * Built in the USA with a 5 year track record of total customer satisfaction.

Why continue fighting the never ending battle with dust? Order NOW by calling **TOLL FREE 1-800-845-9356**, and receive absolutely **FREE** our **Extended Lifetime Warranty,** which is normally priced at $29.95!

CleanAir System	*CleanAir Heavy Duty System*
item # 90175	item # 90177
Suggested List Price **$339**	Suggested List Price **$399**
NOW $269	**NOW $309**
plus $20 shipping	plus $20 shipping

Additional **Filter Replacement Pack** Available-item # 90176 **$29.95** plus shipping

VISA, MASTERCARD and **DISCOVER** cards gladly accepted.

TIPS FROM YOUR SHOP (AND OURS)

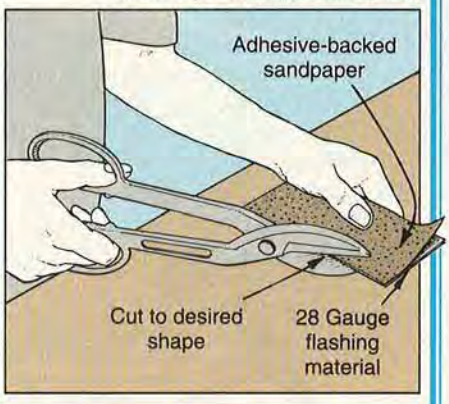
Continued from page 15

Flashing and sandpaper team up in the tight spots

Sanding blocks and most portable power sanders don't reach into small spaces well, and hand sanding in tight spots can wear out your fingers.

TIP: Create your own custom-shaped sanding plates from flashing material. With a pair of tin snips, cut the shapes you need from the 28-gauge aluminum roof flashing you find at most hardware stores. Attach adhesive-backed sandpaper to the flashing and trim to size. The rigidity of the flashing enables you to maintain firm pressure, especially when you're sanding in areas where your fingers can't reach.

—William J. Carroll, Dallas, Pa.



A FEW MORE TIPS FROM OUR WOODWORKING PROS

- With a piece of scrapwood, you can build a doweling jig that automatically aligns rails and stiles. See our door-building article on *page 64* for this technique.
- If crafting a perfectly round wooden circle seems difficult, check out our circle-sanding jig on *page 86.*
- Drilling into dowels just got a whole lot easier. With our two easy-to-build V-block dowel holders on *page 84*, you can securely and accurately drill into the side of a dowel, or even into the end.

TOOL SALE

Makita

6211DWE
12V VSR Cordless Drill Kit w/ keyless chuck, charger, case, & 2 batteries
List $397
$168

6095DWE 9.6V Cordless Driver-Drill Kit w/Free Battery $144
N1900B 3¼ Planer Kit w/case & carbides $134
BO5000 5" Random Orbit Sander $62
2708W 8¼ Table Saw 12A w/CT blade $299
LS1011 10" Slide Comp. Miter Saw w/blade, clamp, & dust bag $529
LS1030 10" Miter Saw w/blade & dust bag $189
2012 12" Surface Planer w/blades, 12A Motor, Plus FREE $70 Stand $529

DEWALT

DW705
12" Compound Miter Saw with Carbide Blade.
$349

DW682K Plate Joiner Kit. $40 of Free Biscuits ... $249
DW625 3 HP Electr. VS Plunge Router $269
DW675K 3 1/8 Planer Kit $159
DW431 3"x21" Elect VS Belt Sander $181
DW945K-2 12V VS Driver Drill Kit w/ 2 batteries $168
DW615 1¼ Elect VS Plunge Router $158
DW318K VS Orbital Jig Saw Kit $139

1-800-262-5482
SAME DAY SHIPPING
FREE FREIGHT
HOME LUMBER CO.
P.O. Box 370 WHITEWATER, WI 53190
C.O.D.

"Offset turning can be made on the lathe using a simple jig."

Tune in to The New Yankee Workshop on PBS to see what Norm's up to this week. Nationally funded by

THE POWER OF THE PROS
DELTA WOODWORKING MACHINERY
PORTER CABLE PROFESSIONAL POWER TOOLS SINCE 1906

WOODCARVING

IS FUN AND PROFITABLE

Want to carve decoys, statues or gun stocks?

It's easy when you use the Dupli-Carver Series wood carving machines. A patented five axis carving action allows these machines to complete difficult undercuts and contours as no other machine can. Complete machines available starting as low as $395.00.

SEND $1.00 FOR OUR FULL LINE BROCHURE AND PRICE LIST AND START PLANNING YOUR FULL OR PART-TIME BUSINESS.

MARLIN DIVISION
terrco incorporated
222 1st Ave. N.W. W46 • Watertown, SD 57201
(605) 882-3888 • Fax (605) 882-0778

SPIRAL STAIRS
Coast to Coast Delivery

FREE ENCLOSED TREAD ENDS $220.00 VALUE

Save 30 % to 50%
Stock & Custom Stairs
Strong Steel Frame
Oak or Brass options
3'6" to 7' Diameter
Easy To Install

FREE BROCHURE
Call or Write -

SALTER INDUSTRIES
PO BOX 183 EAGLEVILLE PA 19408
610-631-1360 FAX 610-631-9384

One Stop Wood Shop

Domestic and exotic hardwood plywood and lumber, marine plywood, over 30 species in stock-all under one roof.
Custom cutting services to your exact specifications with little or no waste at competitive prices!
We specialize in bundling and shipping.

Call (617) 666-1340 today for catalog and quote.

Boulter Plywood Corp.
24-WD Broadway, Somerville, MA 02145

TV Woodworker Visits IDEA SHOP™

Be sure to watch the PBS television show "The American Woodshop" during April when host Scott Phillips pays a visit to the *WOOD* magazine IDEA SHOP.

Phillips spent a day early last November in Des Moines, Iowa, talking with the editors of *WOOD* magazine on the topic of workshop design. Then, Design Editor Jim Downing guided him through the many innovations of the IDEA SHOP that will be seen on the program.

The American Woodshop™

Co-Funded by:

DELTA
WOODWORKING MACHINERY

and

PORTER-CABLE
PROFESSIONAL POWER TOOLS

The program, titled "Designing the Ultimate Woodshop", will discuss workshop design considering safety, work flow, dust collection, storage, plus tool layout and placement, using the IDEA SHOP as a model.

The American Woodshop program blends traditional methods of woodworking with the latest techniques to show viewers how to complete projects safely at home. Phillips also travels the country to meet other artisans at work in their shops.

To discover exactly what he found out at the IDEA SHOP, check the listings for your local PBS station in April to catch the program.

YESTERDAY'S TOOLS

A stand-up plane for flattening floors

THIS TOOL WAS MADE FOR WALKING

Players in the old-tool collecting game often have to figure out a few things when they spot a newly uncovered treasure. What does this do? How does it do it? Who would have used it, and when?

Sometimes, the answers come easily. Consider, for instance, the plane shown *below*. It weighs in at more than 20 pounds and has a pole almost four feet long for a handle. Even at first glance, you know it has to be for floors.

This Stanley 74 floor plane was designed to do one thing—to plane flush the uneven joints of wooden-plank floors. Like so many specialized tools, this one represents a simple variation on a standard workshop implement.

When the 74 first appeared around 1886, all America stood on wood. Practically every home featured wooden-plank floors. Wood was underfoot in skating rinks and ballrooms, classrooms and gymnasiums, saloons and butcher shops, trams and train cars. Ships had wooden decks. All those planked floors needed to be planed.

With the pole-handled Stanley 74, a craftsman could stand up to do the job rather than get down on his hands and knees. A tapered end on the 1¼"-diameter wooden pole slips into a socket on the plane body. The socket pivots up and down at a point right behind the plane's frog. A pair of hand grips can be positioned anywhere on the pole.

The plane itself is a heavy iron casting (later models weigh about 21 pounds, early ones half that). Less than 10½" long by 4½" wide, the slightly coffin-shaped body looks decidedly chunky. It carries an iron 2⅜" wide.

Last manufactured in 1923, the Stanley 74 commands a price today that floors many people—$800-$900 for one complete with handle and grips. A plane without the handle brings $200 or less, depending on condition.

Tool from the collection of Neil Stoll, Glenbrier Antiques, Dexter, Mich. Photograph: John Hetherington

Stanley's no. 74 floor plane let workers stand up, making it easier to put more oomph into the job.

MAYBE IT'S TIME YOU SEEK PROFESSIONAL HELP.

Say you've always wanted a good band saw. Or you've about given up trying to make precision cuts with your hand-held circular saw. Or perfect holes with a portable drill.

Tough to know just where to start. Do you go the "big buck" route or try one of those "cheapo no-names"?

This'll help. Delta has been the choice of professional woodworkers for 75 years, now. And the tools you're looking at are built with the same heft and precision we put into our professional tools. Yet they're priced to fit comfortably into any shop.

Whether you're in the market for a bench saw, band saw, scroll saw or drill press, Delta tools are a great place to start.

The scroll saw features our Quickset™ blade changing system. The band saw, our Quickset™ blade tensioning system. So you'll spend more time cutting and less time messing around with blades. And that 12" Portable Planer will have you surfacing your own stock, from 1/8" to 6" thick, up to 12" wide. In your own shop.

They're just part of the broadest line in the industry. Woodworking tools for the master craftsman, the weekend do-it-yourselfer and everyone in between.

Delta. If you think it's time you got some professional help.

Call toll free for the name of the nearest dealer, home center or hardware store carrying Delta tools. Delta International Machinery Corp., 800-438-2486. In Canada, 519-836-2840. Delta is a Pentair Company.

THE POWER OF THE PROS

DELTA
WOODWORKING MACHINERY
FOR 75 YEARS

The New Yankee Workshop hosted by Norm Abram.

Delta is proud to nationally fund these two PBS programs for woodworkers.

The American Woodshop with Scott Phillips.

ASK WOOD

Print this article

Whether your woodworker's license reads "Beginner," "Intermediate," or "Advanced," you're bound to have a few questions about your favorite hobby. We can help by consulting our staff and outside experts. Send questions to: Ask *WOOD*®, Better Homes and Gardens® *WOOD* Magazine, 1912 Grand Ave., Des Moines, IA 50309-3379

Mitersaw markings seem backwards

Please explain why mitersaw manufacturers mark their tables 0° to 45°, when in relation to the standard fence, it should be 90° to 45°. With the current markings, cutting a 22½° angle as marked on the saw results in a 67½° angle on the board, measured from the fence.

—Perry C. Benton, Vacaville, Calif.

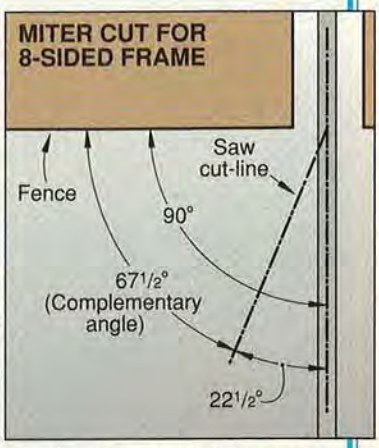
We had to shake the rust off of our our geometry skills on this question, Perry. When cutting miters, we're concerned with the degrees of angle measured from the line perpendicular (or square) to the fence. (*See drawing right.*) These traditional markings on mitersaws (including hand miter boxes) correspond to the formula for calculating the miter angles needed to cut the joints of a case or a molding.

This formula is:

(360° ÷ number of sides) ÷ 2 = angle of cut

Using the example of 22½° (for 8 sides):

360 ÷ 8 sides = 45° ÷ 2 = 22½°



Setting the mitersaw at 22½° off the perpendicular will give you the proper angle for an eight-sided box or molding.

The 67½° you mention, measured from the fence, is the complementary angle to the 22½° miter angle we want to cut for an eight-sided box. To figure miter angles measured from the fence would require a whole new set of formulae to calculate miter joints. We have enough fun dealing with the one that exists.

Continued on page 22

Another breakthrough tool only from Garrett Wade...

With 224 pages, our Free Catalog is probably the biggest in the business. We think it's the best, too.

We have the woodworking supplies and tools that you just can't find in your local hardware store anymore. Everything from traditional old-style hand planes and saws to the very latest in power tools and accessories.

We've got Measuring tools, Chisels, Carving tools, Turning tools, Sharpening tools, and much, much more. Plus half a dozen kinds of glue to hold your work together, 70 stains to color it, and 20 different top coats to protect it.

Just send us the coupon below or call toll-free for your free 1994 Garrett Wade Catalog – plus free supplements throughout the year. It could be just the tool your workshop needs.

Our free 1994 Catalog.

Garrett Wade Co., Inc.
161 Avenue of the Americas
New York, NY 10013, Dept. 944
800-221-2942

Name
Address
City State Zip

For Our New Catalog Please Call *1-800-786-5626*

TRUE VALUE & TRUE QUALITY

OVER 150 DIFFERENT WOODWORKING MACHINES AVAILABLE

LOBO POWER TOOLS

Orders Only:
(800) 786-5626
Chicago:
(219) 794-9255
Atlanta:
(404) 416-6006

Main Office:
9031 E. Slauson Ave.
Pico Rivera, Ca. 90660
(310) 949-3747

Better Homes and Gardens® Woodcrafts PATTERNS

From The Editors of *Better Homes and Gardens* Decorative Woodcrafts™ magazine

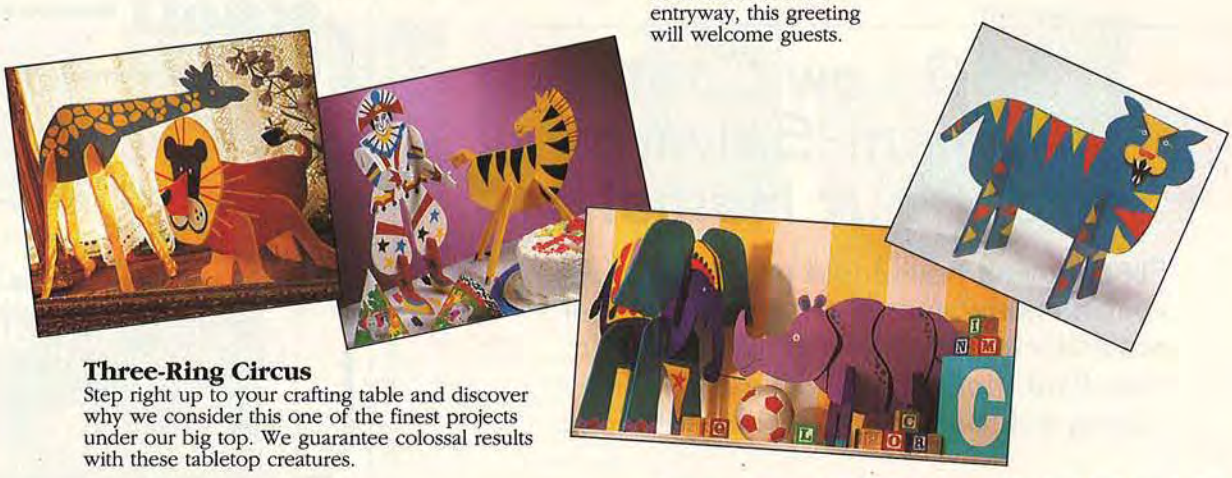
Create These Projects With Ease!

Yard-Guard Witch
Decorate your yard with our six new Halloween designs. Witch Wanda may not scare visitors at 3 1/2', but we guarantee she'll make them smile.

Country Christmas Trio
For tabletops, country shelves, and fireplace mantels, craft all three of our holiday projects. There's no painting skill required here—just cut out the shapes with your scrollsaw (or order the cutouts), and then apply the color.

Year-Round Welcome
Craft our banner with 12 original monthly designs for a whole year's enjoyment. Hanging on the front door or in the entryway, this greeting will welcome guests.

Noah's Ark
All-aboard Noah's Ark. Simple to craft, fabulous to display! Here's the perfect Noah's Ark design—39 pieces total—for country, contemporary or traditional decorating.



Three-Ring Circus
Step right up to your crafting table and discover why we consider this one of the finest projects under our big top. We guarantee colossal results with these tabletop creatures.

Mail to: Decorative Woodcrafts™ Magazine, P.O. Box 9255, Dept. WD-27, Des Moines, IA 50306

To order one plan send $9.95 (U.S.); two plans for $18.00; three plans for $25.50; four plans for $32.00 or all five plans for $40.00. Costs include shipping and handling. If applicable, state and local taxes are included in the cost. Please allow 2-3 weeks for delivery.

100% money-back guarantee if not completely satisfied.

YES **I want to make these wonderful projects. Please send me the plan(s) I have indicated.**

☐ Witch ☐ Christmas Trio ☐ Ark
☐ Welcome ☐ Three-Ring Circus

Total enclosed for _____ plans: $_____

Name _____

Address _____ Apt. #_____

City _____

State _____ ZIP _____

ASK WOOD

Continued from page 20

Mothballs and cedar don't mix

We recently inherited the cedar chest my father-in-law built in 1937. Is there any way I can get the smell of mothballs out of it?

—Kathie Riedl, LaCrosse, Kan.

For an answer, Kathie, we contacted John West of West Metro, an odor-control company in Altoona, Iowa. He told us: "Use a water-soluble odor counteractant to remove the smell of the mothballs. Mix this with water, and spray a fine mist on the inside of the cedar chest." John recommended that you contact a chemical-supply business in your area for the odor counteractant.

We located a supplier for a water-soluble odor counteractant called "Eliminator", available for $9.95 per quart from:

Heartland Chemical
525 E. 2nd
Ames, IA 50010
515/232-1302

You can restore the original fragrance of the Eastern red cedar by lightly sanding the surface. This will allow inner oils to return to the surface of the wood, complete with a pleasant, cedar aroma.

The board flew apart

I was ripping a piece of parana pine, when the strip I was cutting started to curve. I used a wedge to keep the kerf open. When I was about 12" from the end of the board, the board exploded into two pieces. Why did this happen?

—James T. Rucker, Houston

We suspect, Jim, that you found a board that contained "internal stress." This develops in trees grown on steep slopes, or any other situation where one side of the tree has more stress on it than the other side as the tree grows.

Apparently, this particular board had been cured and flat-planed, and the internal stresses were balanced enough for the board to remain straight. When you started to rip the piece, you changed the balance of stress, and the wood came apart.

You can detect this internal stress in softwoods by a dark streak or an abrupt color change in the board. The compressed grain makes this wood harder to work, more brittle to use, and this wood requires extra caution while machining.

360 Low Cost Problem-Solvers For Your Home!

Fix annoying household problems and routine maintenance with professional results - quickly, inexpensively, without risk. Find more than 360 easy, money-saving solutions that get the job done.

- ❑ Repair & Maintenance
- ❑ Organizers & Space Savers
- ❑ Cleaning & Fix-up
- ❑ Home Toolbox
- ❑ Home Refurbishing
- ❑ Yard Maintenance & Landscape

CALL 1-800-446-6306
OR MAIL THIS COUPON.

FREE CATALOG!.

NAME DEPT 5468
ADDRESS
CITY
STATE ZIP

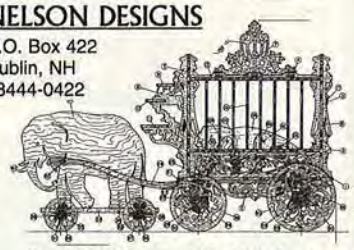
Mail to: "Improvements", 4944 Commerce Pkwy, Cleveland, OH 44128

SCROLL SAW Patterns & Projects

* Wall Shelves
* Corner Shelves
* Mirrors
* Toys
* Clocks

Advanced Full-Sized Patterns

NELSON DESIGNS
P.O. Box 422
Dublin, NH
03444-0422



Send $1.00 for illustrated brochure

Full-Size Professional Plan
ADIRONDACK CHAIR

Make this classic American design. Our special version may be folded for storage by using ordinary hardware available at your local store. Be ready for Summer and get your plan now!

Plan #700 ..... $15.00
(catalog free with order)

CATALOG 200 full-size professional furniture plans — $3.00

VISA MasterCard

FURNITURE DESIGNS. INC., Dept. BA-64
1827 Elmdale Ave., Glenview, IL 60025
(708) 657-7526

Discover the only book club exclusively for Woodworkers and...

TAKE ANY BOOK FREE

WITH ANOTHER AT 1/2 PRICE!

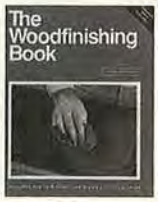
If you <u>really</u> like saving money you may choose a third book for just **1/2 price** *with membership in Woodworker's Book Club.*

6 Great Reasons to Join Now!

1. **HUGE DISCOUNTS**—you save 15-50% on every book you buy!
2. **NO OBLIGATION TO BUY ANY MORE BOOKS!!**
3. **FREE BONUS BOOKS**—choose one **FREE** book with every four you buy from the News.
4. **FREE** Postage and Handling—after this initial offer on all your pre-paid orders.
5. **SATISFACTION GUARANTEED**—Every book you buy has a 15 day money-back guarantee!
6. **FREE** 6 month subscription to Woodworker's Book Club NEWS. Every month your copy of the NEWS—packed full of the newest and best woodworking books along with sure-fire shop tips, special articles, and guest columns written by woodworking pros—is delivered right to your door!

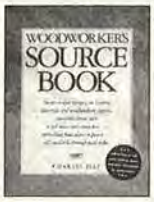
#70209-51
$19.95
1/2 Price: $9.98

#80065-38
$14.95
1/2 Price: $7.48



#80172-73
$24.95
1/2 Price: $12.48

#70230-73
$24.95
1/2 Price: $12.48



#70208-51
$19.95
1/2 Price: $9.98

#70163-72
$22.95
1/2 Price: $11.48

#43072-25
$29.90
1/2 Price: $14.95
Count as 1 selection.

#80063-84
$25.90
1/2 Price: $12.95
Count as 1 selection.

#80054-78
$21.95
1/2 Price: $10.98

#80116-38
$14.95
1/2 Price: $7.48

#70210-85
$18.95
1/2 Price: $9.48

#70162-93
$16.95
1/2 Price: $8.48

#80059-61
$17.95
1/2 Price: $8.98

#43082-84
$25.90
1/2 Price: $12.95
Count as 1 selection.

NO OBLIGATION TO BUY MORE BOOKS!

#70195-93
$16.95
1/2 Price: $8.48

#80077-38
$14.95
1/2 Price: $7.48

#80067-51
$19.95
1/2 Price: $9.98

#80246-93
$16.95
1/2 Price: $8.48

WOODWORKER'S BOOK CLUB

Membership Plan:

Every month I'll receive Woodworker's Book Club NEWS describing the Main Selection and dozens of other books for woodworkers. If I want the Main Selection, I do nothing and it will be sent to me automatically. If I want a different book, or want nothing that month, I'll always have at least 10 days to decide and return my Selection Card. If late mail delivery ever causes me to receive a book I don't want, I may return it at club expense. I have NO OBLIGATION to buy any more books—I'm just trying out the club for 6 months. After that, I may cancel my membership at any time. If I wish to maintain my membership, I need to buy only one book from the NEWS in any 6 month period. The club may cancel my membership if I don't buy at least one book every 6 months. If I'm ever unhappy with a book for any reason, I may return it within 15 days for full credit or refund, no questions asked When we say Satisfaction Guaranteed, we mean it!

☐ **YES!** I'd like to join Woodworker's Book Club! Send me my special New Member Books! LAW6

My FREE Book # _____ $ **FREE**

My 1/2 Price Book # _____ $ _____

plus postage and handling ..... $ $4.87

My Optional 1/2 Price Book # _____ $ _____

I get all this for just **TOTAL** $ _____

(Ohioans add 5 ½ % sales tax, Canadians add 7% GST. Payment must accompany order.)

I understand the membership plan and that I have **NO OBLIGATION** to buy any more books.

☐ Check enclosed (or) Charge my ☐ Visa ☐ MasterCard

Acct # _____ Exp. Date _____

Signature _____
(required on all certificates)

Name _____

Address _____

City _____ State _____ Zip _____

Visa and MasterCard Orders Call Toll-Free 1-800-937-0963
9 a.m. - 5 p.m. Eastern time, Mon.-Fri.

Offer good in the U.S. and Canada for new members only. Remit in U.S. funds. One membership per household. All applications subject to approval. Please allow 3-4 weeks for delivery.

WOODWORKER'S BOOK CLUB
P.O. Box 12171
Cincinnati, Ohio 45212-0171

SHOP TESTED

Print this article

A nifty thread-making attachment for lathes

I've always enjoyed turning small wooden vessels, and have long dreamed about producing such vessels with threaded lids. Recently, I tried a product that makes my wish a reality.

The Threadmaster system consists of a thread-cutting bit that mounts to a drill chuck on the headstock of your lathe, and a feed mechanism that mounts to the lathe bed and holds your workpiece. (Chuck shown in the photos at *right* is not included with the product.)

To produce a lidded vessel, you need to first turn the vessel and its lid in the usual fashion. Then, remove your workpieces from the lathe and put the Threadmaster components into place. By rotating two cranks on the feed mechanism, you control the cutting depth and rate of thread cutting.

To test the product, I turned numerous vessels and lids ranging from 2" to 8" in diameter, in maple, cherry, and walnut. I quickly discovered that I got the smoothest possible cuts with my lathe set to its highest speed. I further reduced chip-out by making my cuts in three passes.

After practicing with the product for a few days, I produced vessels that fit together perfectly, with near-flawless threads. Because I used the product on my full-sized lathe, I needed an optional extender bolt ($10 from Penn State Industries). This allowed me to place the feed mechanism on a wooden block so that I could raise smaller vessels up to the cutting bit. The standard Threadmaster cuts 10 threads per inch, which seemed fine for the projects I produced. You also can buy optional threaders that produce four or 16 threads per inch ($59 each).

—Tested by Lee Gatzke

Threadmaster, $242.95 ppd. from Penn State Industries, 2850 Comly Road, Philadelphia, PA 19154. Call 800/377-7297 to order, or 215/676-7609 for more product information.

NEW

From The Editors Of
Better Homes and Gardens.
WOOD magazine

18 of *WOOD* magazine's most popular outdoor projects!

- Adirondack-style furniture
- Country-style furniture
- Kid stuff
- Garden and deck projects

Order Yours Today!

To order, send your name, address, and phone number, plus $6.95 for each magazine ($4.95 plus $2.00 for shipping and handling, state and local taxes, if applicable, are included) to:

WOOD® magazine's Best Outdoor Projects
P.O. Box 9255, Dept. WD-27
Des Moines, IA 50306

Or call 800-572-9350
7:00 a.m. – 9:00 p.m. CST
for Visa or MasterCard Orders.

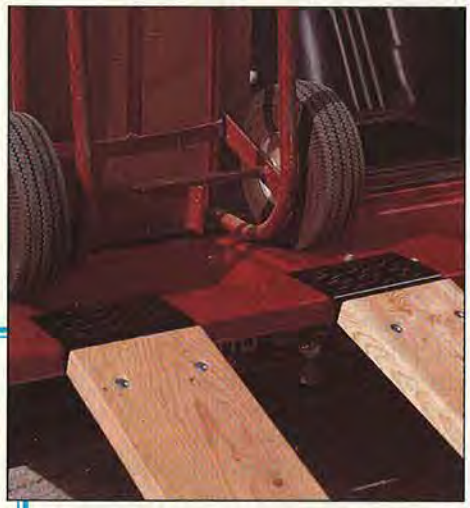
Please add $2.00 per magazine for Canadian and other foreign orders. Allow 4-8 weeks for delivery.
100% money-back guarantee if not completely satisfied.

96 Pages!

OR PICK UP ON THE NEWSSTAND MARCH 29, 1994

Save your back: ramp kit eases loading and unloading

Most home woodworkers encounter some heavy lifting, whether it be bringing home a new stationary tool or delivering a large furniture piece. A dolly helps on flat ground, but what do you do when you've got to hoist something up two or three feet? The Insta-Ramp Combination kit tackles this problem by enabling you to convert a pair of 2×8's into a stable ramp that can handle loads up to 1,400 pounds.



The kit consists of two sturdy steel ramp tops, two rubber ramp feet, and the necessary hardware. The tops bolt to 2×8's that you supply, and the rubber feet slip over the lower ends. Using these ramps I easily loaded and unloaded a boxed-up bandsaw weighing 150 pounds. Heavier loads also tracked steadily up the ramps, but I did need a helper pushing from below.

If you've got a vehicle with a tailgate, these ramps will come in handy. They make loading and unloading much safer, and they'll keep your back out of the chiropractor's office too.

—Tested by Bob McFarlin

Insta-Ramp Kit, about $35, at hardware and homecenter stores or call Universal Industrial Products at 800/922-6957.

Continued on page 26

The Dremel Moto-Tool® is the compact, high-speed rotary tool that's extremely versatile. With speeds from 5,000 to 30,000 rpm and more than 150 available bits, it lets you handle almost any job. Use it on wood, metals, ceramic tile, glass, fine silver, plastics, laminates and more. Look for our book *175 + USES* in specially marked Moto-Tool packages where power tools are sold. Or write: Dremel, Dept. W, P.O. Box 1468, Racine, WI 53406-1468 for a free copy.

DREMEL®

A Perfect Gift That Will Please Anyone
HAND TOOLED CARVING LOOK

Lightweight. Professional-quality. Pressure-activated head controls cut depth, speed to 10,000 VPM. Makes carving easy. Operates on household current. Includes 5 blades. 16-page instruction for beginner to advanced carver available.
Prices start at $178.00
Visa and Mastercard accepted.
Sugino Corp. (708) 397-9401
1700 Penny Lane • Schaumburg, IL 60173

MAKE TOYS
CLOCKS & WHIRLIGIGS
Door Harps, Dollhouses, Music Boxes, and Dozens more fun Wooden Toys from our plans, parts, kits & supplies. Bulk Price available. Catalog $1.00.
CHERRY TREE TOYS
Box 369-335,
Belmont, OH 43718
1-800-848-4363, ext. 335-A

12" Compound Miter Saw with Dust Bag
$349.
#DW705

DEWALT
High Performance Industrial Tools
DW682K HD plate joiner kit w/biscuits $225
DW625 NEW 3 hp vs plunge router 269.
DW945K-2 12V drill w/2 batteries 169.
DW615 NEW 1-1/4 hp vs plunge router 159.
DW364 7-1/4" saw with brake 148.
DW254 0-2500 deck scrugun 89.
TOOL CRIB OF THE NORTH
PO Box 13720
Grand Forks, ND 58208
June Wood 1-800-358-3096

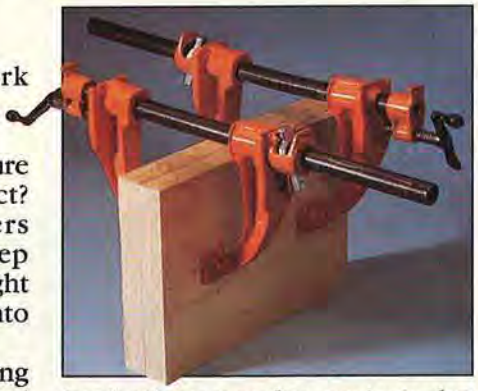
RIP SAW
The Portable Sawmill.
The "affordable portable" one man band sawmill. Weighs only 45 lbs. Cuts 20" diameter logs into lumber. Minimum 1/8" to maximum 9" thickness. 14"W x 9"H throat capacity. Write or call for free brochure. Videos also available.

Better Built CORPORATION
(508) 657-5636
845 Woburn St., Suite 3, Dept. W05/06, Wilmington, MA 01887
MasterCard VISA DISCOVER

PRODUCTS THAT PERFORM
SHOP TESTED

Continued from page 25

Big clamps take a bite out of tricky setups



Traditional pipe clamps work great on the edges of glue-ups, but what do you do when you need clamping pressure in the center of a wide project? The Mastodon Jaw Extenders solve this problem with 8"-deep clamping jaws. These lightweight aluminum attachments slide onto regular ¾"-pipe clamps.

Building your own deep-clamping fixtures eats up a lot of time, and these clamp extenders give you all the long-arm clamping you need in just seconds. I used these extenders to glue up a 24"-deep bookcase and they created plenty of pressure at the center of the shelf dadoes. I recommend the Mastodon Jaws for anyone who puts together bookshelves, bowl laminations, or other projects that require clamping pressure in the middle of a wide workpiece.

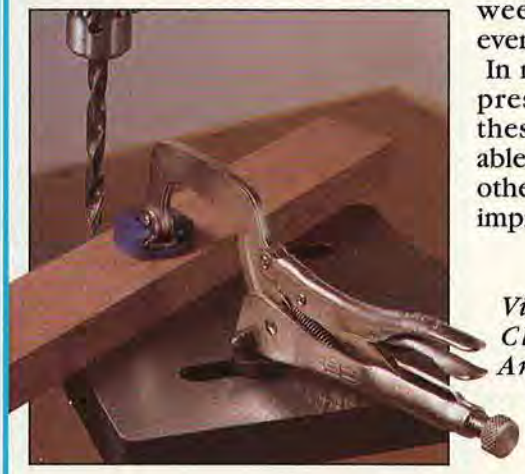
—Tested by Dave Henderson

Mastodon 8" Jaw Extenders, model JE-1 about $30 a pair, from Wade Manufacturing. Co., P.O. Box 2366, Portland, OR. Call 503/692-9027.

Drill-press clamp sets up fast, holds material safely

Most woodworkers don't realize how dangerous a drill press can be until they've had a loose workpiece take wing at whatever spindle speed they're using. In the past, I've used C-clamps to hold material, but they eat up a lot of time and effort. Now, American Tool Companies has tackled this problem by reconfiguring its Vise-Grip locking pliers with a stud bolt and a new clamping jaw.

The stud bolt fits into any drill press (or any kind of tool table) with a ½" slot, and attaches with a wing nut. It took me less than 30 seconds to install and remove the clamp. To adjust for material thickness and clamping pressure, simply tighten the knob at the end of the handles as you do with the regular locking pliers.



I tested this clamp with a variety of woods and drill bits including a Forstner bit, and it held everything fast. The jaw pads protected the wood surfaces well, and I also liked how quickly I could reposition the work and reclamp.

For an especially tough test, I loaned the clamp to a friend who works in a machine shop. After a week, he reported that it held everything he could throw at it.

In my opinion, if you own a drill press, you should own one of these clamps. With it you'll be able to work faster than with any other type of clamp, and greatly improve your safety.

—Tested by Bob McFarlin

Vise-Grip Locking Hold Down Clamp, about $28, from American Tool Companies Incorporated, P. O. Box 337, DeWitt, NE 68341. Call 402/683-2315.

Here's What Our Customers Say!

Forrest-
You are the best!
Your blades are the best!
Your service is the best!
Your sharpening of my (cheap) dado set made it a new set.
It's a pleasure to do business with you – (I have told this to all of my friends, colleagues and family)

Herbert Needlman
Greenlawn, NY

"NO GEN. PURPOSE BLADE PRODUCED BETTER RESULTS than the FORREST 40 tooth Woodworker II."
Install and leave it for plys & woods to 1½". W. Krier.

Outperformed 36 other PREMIUM blades in WOOD Mag. test P. 45, Sept. 93.

* * * * * * *

SAVE $30

Get 6 - $5 sharpening discount coupons on **FORREST** or **other make** carbide blades or dados if ordering before June 30, 1994. Must mention WOOD for coupons & EXTRA BONUS.

* * * * * * * *

(unsolicited)

Attention: Customer Relations Re: Woodworker I & II Blades

Gentlemen:

→ I recently ordered and received Woodworker I & II saw blades for my radial and table saws. I used the blades received.

I originally avoided your blades because of the cost in comparison with other models on the market. I saw some chips missing in my old blades, and it was time to toss and replace with new blades. I sighed and ate the additional cost and purchased your blades and stiffeners.

I find your blades of the highest quality. They produce a velvet cut with a polished finish which is not surpassed by any other manufacturer on the market. The wood passes through the saw like a hot knife through butter: smooth and with little effort. I see a similar glide whether it is maple, oak, pine, or whether it is thick or thin. Really fine stuff.

Your production staff can be proud of their work. The production quality is not just good, or to specification, it is exceptional.

→ In retrospect, the minor difference in cost is well worth the final result. Besides, it is the blade that produces the cut for a piece to outlast the maker.

Glad to make acquaintance with your staff and their work.

Respectfully yours,
David Hares, Esq.
Attorney, St. Louis, MO

(From Another Customer)

In closing I would like to add that the Woodworker II blade is by far the finest saw blade that I have ever used. I also have the Forrest dado set which is without a doubt, the king of all dado sets. I work exclusively with red oak and oak veneer plywood and the dado set performs splinter free cuts as advertised.

→ It is a pleasure to purchase a product that does what it is advertised to do. Thanks for making such a fine product.

Sincerely,
Dennis R. Schule
Owatonna, MN

WOODWORKER II

TABLE-SLIDE & CHOP MITERS (gen. prps.) & small PORTABLES (Skil, etc.)

Things you asked us for:

With this ONE ALL PURPOSE blade (40 Teeth) you can SMOOTH RIP & CROSSCUT 1"-2" ROCKHARDS and SOFTWOODS with **smooth-as-sanded surface**. PLY-VENEERS (oak/birch) crosscut with NO BOTTOM SPLINTER.

- Mostly 1/8 kerf 15°, ATB and 20° face hook (easyfeed).
- DOUBLE HARDER and 40% STRONGER CARBIDE.
- Ends **blade changing** (does rip, combo and crosscut).
- Ends **scratchy saw cuts** (for the rest of your life).
- Ends **second step finishing** (jointing or sanding).
- Ends **cutting 1/16" oversize** to allow for RESURFACING.
- Buy and **sharpen ONE** blade instead of 3 (24T rip, 50T Combination, 80T Crosscut).
- *Strongly* recommend our *.001* flat **large stiffener-dampener** against out side of blade for smoothest, **QUIETEST CUTS** by this and any other blade.
- Use 30T if ripping mostly 2" - 3" hardwoods.
- Side wobble held *.001* - others .004/.010 is common! RAISE for THICK woods, LOWER for THIN woods and *perfect cut everything!* All 5/8" holes, unless otherwise noted.

	List	SALE		List	SALE
14" x 40T x 1" BORE	$215	$149	9" x 40T	$146	$109
14" x 30T x 1" "	195	139	30T	125	99
12" x 40T x 1" "	183	129	*8-1/4" x 40T 3/32	136	99
12" x 30T x 1" "	162	119	8" x 40T 3/32	136	99
10" x 40T 1/8 & 3/32	156	119	30T 3/32	115	89
30T 1/8 & 3/32	135	99	7-1/4" x 30T 3/32	112	69
5/8" holes std. Boring up to 1-1/4" $7.50 extra - Shipping $4.50			New 6" x 40T 3/32 *Saw Boss*	139	89

* NEW For Sears & Makita Table Saws

QUIET! *Also help all your other blades to cut better.* Use our 1/8" DAMPENER STIFFENERS, against one side

4" - $21
5" - $24
6" - $25

Tryable and RETURNABLE. CUTS NOISE to 1/2 or 1/4. Stops vibration, flutter, cutting noise and blade ring. Parallel and flat to .001 • 7" and larger available.

5/8" holes std. Boring up to 1-1/4" $7.50 extra. Others available. Add $2.50 Shipping.

REDUCE NOISE 50%-75%

WOODWORKER I - For TABLE and RADIAL SAW

this trim and crosscut ALL PURPOSE blade gives scratch free POLISHED cuts on all materials RIP or CROSSCUT up to 2".

- All 60T and 3/32" *THIN* kerf 30° ATB and 5° face hook on 10" dia and under. 12" and 14" are 20° ATB 1/8" K.
- DOUBLE HARDER and 40% STRONGER carbide.
- THIN KERF:
  Saves 1/3 wood loss on each cut, radial or table. Feeds easy when used for moderate rip and crosscut on table saw. **Reduces "JUMP IN"** greatly for better "PULL CONTROL". Practically **eliminates bottom splinter** on RADIAL-CROSS CUT.
- Totally stops ALL bottom and top splinter on ply veneers in push-cut mode on RADIAL.
- Our STIFFENER STRONGLY RECOMMENDED AGAINST outside of blade only for best cuts.

Made and serviced in USA for your benefit.

	List	SALE
14" x 60T x 1" 1/8"	$224	$159
12" x 60T x 1" or 5/8" 1/8" K	198	139
10" x 60T x 5/8" 3/32" K	162	129
9" x 60T x 5/8" 3/32" K	156	119
8" x 60T x 5/8" 3/32" K	150	109
New 8-1/4" x 60T x 5/8" 3/32" K	150	109

RYOBI RA200 TS200 SEARS HITACHI PSM8 **MAKITA 500B NBA PORTER CABLE 368-1**

NEW DADO KING DELUXE *DADO SET* cuts *ALL* 1/8 - 29/32 **flat bottom** grooves WITH or CROSSGRAIN all woods. OAK, BIRCH, VENEER PLYS, and MELAMINE. NO SPINTERING due to unique 4T Neg. Face fillers and 24T outside saws.
OUT PERFORMS 29 + 32 OTHER DADO SETS-WOOD Mag., Oct. 91 "Best Value"

No tearout on all five woods tested. *-Fine Woodworking July/Aug. 1991*

Boring up to 1-1/4" $25 per set **SALE! 10% OFF $5.50 Per Set Shipping** **NEW 3/32 Chipper & Shims incl.**

8 - 5/8" Bore List $321/**SALE $289** • 10 - 5/8" & 1" Bore List $389/**SALE $349**

DURALINE Hi-AT For TABLE & RADIAL SAW

(very good on chop saw too!) STOP SPLINTERING those SPLINTERY OAKS, HARDWOOD VENEERS and *thin* 2 SIDE LAMINATES ON PARTICLE BOARD.
FOR FASTER FEED RATES AND MORE ABSOLUTE SPLINTER CONTROL.

NEW PRICES EFFECTIVE SEPT. 1, 1993

DURALINE Hi-AT

Note: *Fine Woodworking Editorial Nov./Dec. 1988 No. 73, pg. 65, S.N. recommends high alternating top bevel (ATB) thin kerfs and large blade stiffeners for smoothest cuts on RADIAL SAW, etc.*

Jim Forrest, President and designer microscoping cutting edge.

All 5/8" holes. Boring up to 1-1/4" $7.50 extra
Larger holes - time basis. Shipping $4.50

	LIST	SALE
7-1/4" x 60T 3/32"	$149	$129
6" x 80T 1/8" & 3/32"	202	$169
9" x 80T 1/8" & 3/32"	207	$179
10" x 80T 1/8" & 3/32"	207	$159
SPECIAL SALE!10" ONLY $159		
12" x 80T x 1" 1/8"	212	$181
12" x 100T x 1" 1/8"	253	$215
14" x 80T x 1"	232	$197
14" x 100T x 1"	266	$226
16" x 80T x 1"	262	$223
16" x 100T x 1"	294	$243

CARBIDE IS THE HARDEST OF THE C-4 GRADES AND 40% STRONGER, NOT WEAKER!! For 50% to 300% longer life!

CHOPMASTER for SLIDING COMPOUNDS & *MITER SAWS*

New specs, 5° Neg. Pts. & flat, dial .001/.002 for perfect, tight, smooth, splinter-free miter joints.

NEW AVAILABLE SIZES			List	SALE
Delta Sidekick 6-1/2"	6-1/2" x	40T x 5/8"	$149	$ 89
Sears 8-1/4" & Delta	8-1/4" x	60T x 5/8"	170	99
Hitachi 8-1/2" DeWalt 8-1/2" & Ryobi	8-1/2" x	60T x 5/8"	179	109
Delta	9" x	80T x 5/8"	204	119
Ryobi-Makita & all	10" x	80T x 5/8"	207	129
Hitachi & B&D & DeWalt	12" x	80T x 1"	229	139
Ryobi-Makita	14" x	100T x 1"	266	179
Hitachi	15" x	100T x 1"	277	189

For good gen. prps. cuts use Woodworker II 30T & 40T or Woodworker I

Use small stiffener where possible

WE RECOMMEND OUR FACTORY SHARPENING as some local sharpening creates problems with **Micro-chipped edges** reducing blade life & cutting quality. 2-4 DAYS ON THESE AND ALL MAKES OF FLAT FACE & CONCAVE CARBIDE TIP SAWS. SHIP VIA UPS. Typical 10 x 40T $15.00, 60T $17.75. Add return UPS $4.50 or 2nd Day Air $8.

SATISFACTION GUARANTEED OR FULL CASH REFUND.
47 years of fine American saw making & sharpening.

Quality is why we're different

FORREST

FORREST MANUFACTURING COMPANY, INC.
461 RIVER ROAD, CLIFTON, NJ 07014
DEALER INQUIRIES WELCOME

BUSINESS OPEN ACCOUNTS AVAILABLE

FOR SPECIAL BONUS MENTION WOOD® MAGAZINE
We honor Amex, VISA, MasterCard & Discover, Money Orders, Personal Checks, and CODs. Specify Dept. WD when ordering.
PHONE TOLL FREE! 1 (800) 733-7111
(IN NJ; 201-473-5236) FAX: 201-471-3333

You Can Make Toys, Crafts, Gifts and More...

With RBI Hawk Scroll Saws.

Imagine creating beautiful crafts and toys, tole cut-outs, intricate, detailed fretwork and inlays requiring no sanding. Create projects that will be treasured...year after year.

RBI Hawk's are designed and made in the US for professional shops and demanding hobbyist's. After all, you're the first one to know that the projects you create are only as good as the tools you use.

• 30-Day Money Back Guarantee
• 3-Year Warranty

Call 1-800-487-2623 To Order *or* Your FREE rbi Catalog.

rbindustries
The American Tool Manufacturer
1801 Vine Street • PO Box 369
Harrisonville, MO 64701 DT10

GREAT
ENCOURAGEMENT
FOR
SHIPWRIGHTS!
All gentlemen shipwrights and able bodied modelists who have a mind to provide for themselves amusement and satisfaction through the traditional craft of ship modeling, an opportunity now offers to acquire, through the minimal cost of one Colonial Dollar ($1.00), a catalog of fine and unique ship model kits, plans, books and fittings from the renowned company of Model Expo located in Mt. Pocono in the state of Pennsylvania.

Send $1.00 for a catalog to:
MODEL EXPO, INC.
Dept. WD54, PO Box 1000, Mt. Pocono, PA 18344
Name
Address
City
State Zip

Print this article

GEL STAINS

A little dab'll do ya'

Drips and runs on vertical surfaces pose no problems with thicker, easy-to-apply gel stains.

If you've had problems with liquid stains, the claims for gel stains might sound too good to be true. They're billed as easier and less messy to apply, and you don't have to stir them up first. They also promise better color control, with no lapping hassles. What's more, you don't need to seal softwoods before you apply gels.

Taking aim at lofty claims

Because of all of the manufacturers' hype about gel stains, we decided to give them a close, hands-on look. In fact, we tried out seven brands to see if they lived up to their lofty claims.

Most of these were solvent-based, but two were one-step gels that combined a solvent-based stain with a varnish topcoat. Just about all had the same gloppy consistency as soft pudding. And altogether, we counted a total of 47 color choices.

Though you can apply gels with a brush, roller, or sponge, we used a clean cotton cloth. That's because you must rub the gel into the wood to liquefy it.

After that, you have several choices. You can wipe the gel off right away, wait up to five minutes before wiping, or continue rubbing it in until it looks shiny. In all cases, try to make final color adjustments before the manufacturer's full drying time.

Made to please

We found plenty of flexibility when applying gel stains. We tried two things you'd never attempt with liquid stains—staining unfinished wood next to an area that we stained and let dry, and removing stain completely.

As promised, lap marks were no problem when we went back to an area we'd already stained. The trick is to go over both the unfinished and the previously stained areas together. But don't worry. As long as the first area hasn't completely cured, applying more gel stain won't darken it.

When you do want to darken the color, just allow the full drying time between applications. Another plus: you don't have to sand between coats—you've already rubbed the stain smooth.

We also were pretty successful when we tried to remove the gel stains. We waited 30 to 60 minutes, and then rubbed a small stained area with a cloth dampened with paint thinner. Most of the stain came off every time.

Just need to lighten an area? We got good results by rubbing in a little paint thinner, or even more of the gel itself, which softened the previous coat and let us rub it down to a lighter color.

Costs and compromises

Ounce for ounce, gel stains cost a little more than liquid stains ($4 to $7 for eight ounces). But, they'll cover two to three times the area.

What about disadvantages? Because you have to rub them in, they're not the best for large areas, such as floors. And, as with all stains, read label directions and test the color on scrap first.

Photograph: Wm. Hopkins

PORTER+CABLE

100	7/8 HP ROUTER	$102
310	PRODUCTION LAMINATE TRIMMER	145
312	PRODUCTION OFFSET LAMNT TRIMMR	164
314	4 1/2" TRIM SAW	140
315-1	7 1/4" BUILDERS SAW	122
330	SPEED BLOCK FINISHING SANDER	62
332	QUIKSAND 5" RNDM ORB W/ STIKIT PAD	66
332K	332 W/ CASE & 100 SHEETS PAPER	92
333	QUIKSAND W/ HOOK & LOOP, DUSTLS	75
333K	333 W/ CASE & 50 SHEETS PAPER	101
334	QUIKSAND W/ STIKIT, DUSTLESS	75
334K	334 W/ CASE & 100 SHEETS PAPER	101
345	SAW BOSS 6" CIRCULAR SAW	106
347	7 1/4" FRAMERS SAW 15 AMP, 10.25 LBS	128
351	3" X 21" BELT SANDER	148
352	3" X 21" BELT SANDER W/ DUST BAG	152
352VS	3" X 21" VS BELT SANDR W/ DUST BAG	165
360	3" X 24" BELT SANDER W/ DUST BAG	195
361	3" X 24" BELT SANDER	185
362	4" X 24" BELT SANDER W/ DUST BAG	199
363	4" X 24" BELT SANDER	192
410	UNDERSCRIBE LAMINATE TRIMMER	150
411	MITER FOLD LAMINATE TRIMMER	165
447	7 1/4" FRAMERS SAW W/ BRAKE 15 AMP	138
505	1/2 SHT FIN SANDER	125
550	*NEW POCKET CUTTER*	178
556	BISC JOINER W/ CASE & TILT FENCE	172
556K	SAME AS ABOVE W/ 1000 BISCUITS	195
690	1 1/2 HP ROUTER W/ 1/4" & 1/2" COLLETS	134
690K	690 W/ CS, EDGE GUIDE, & TEMP GD KIT	179
9690	1 1/2 HP ROUTER W/ CASE	144
691	1 1/2 HP "D" HANDLE ROUTER	149
693	PLUNGE BASE ROUTER, 1 1/2 HP	169
695	SHAPER TABLE W/ 1 1/2 HP ROUTER	217
696	SHAPER TABLE	129
2620	3/8" VSR DRILL, 0-1200 RPM W/ CHK	89
5008	DOVETAIL TEMPLATE	79
5009	MORTISE & TENON JIG	47
5116	OMNI JIG	267
6931	PLUNGE ROUTER BASE	74
7116	*NEW 24" OMNIJIG*	298
7310	LAMINATE TRIMMER, 5.6 AMP	90
7312	OFFSET TRIMMER	129
7319	TILT BASE TRIMMER	102
7335	5" RANDOM ORBIT SANDER, VS	131
7335K	7335 W/ CS, DUST EX SYS, 100 SHTS PPR	175
7336	6" RANDOM ORBIT SANDER, VS	135
7336K	7336 W/ CS, DUST EX SYS, 100 SHTS PPR	182
73333	RANDOM ORBIT DUST EXTRACTION	24
7518	3 1/4 HP FIXED BASE ROUTER-5 SPEED	269
7519	3 1/4 HP FIXED BASE ROUTER-1 SP	235
7536	2 1/2 HP FIXED BASE ROUTER	202
7537	2 1/2 HP FIXED BASE "D" HNDL RTR	209
7538	3 1/4 HP PLUNGE ROUTER-1 SPEED	235
7539	3 1/4 HP PLUNGE ROUTER-5 SPEED	269
7549	TOP HANDLE BAYONET SAW	134
7649	BARREL GRIP BAYONET SAW	147
7700	*NEW 10" LASERLOC MITER SAW*	345
9118	PORTA PLANE KIT W/ CASE, CRBD BLD	209
9314	4 1/2" TRIM SAW KIT	152
9315	7 1/4" BUILDERS SAW KIT	142
9345	SAW BOSS 6" CIRCULAR SAW KIT	125
9637	TIGER SAW VAR SPD RECIP SAW KIT	144
9647	TIGER CUB RECIP SAW KIT	119
9840	CRDLS DRILL KIT W/ 2 BAT, CS KYLS CK	148
9853S	12V CRDLS KIT W/ 2 BAT, CASE	169
97310	LAMNT TRIMMR KIT W/ 4 BASES & CS	194
97751	1/2" VS, 2 SPD HAMMER DRILL KIT	149

Panasonic

EY6181CRKW	*NEW PREDATOR* 9.6V CORDLESS KIT VSR W/ KYLS CHUCK, 22 STAGE CLUTCH W/ 2 BAT, CASE & CHRGR	158
EY6100CRKW	*NEW PREDATOR* 12V CORDLESS KIT VSR W/ KYLS CHUCK, 22 STAGE CLUTCH W/ 2 BAT, CASE, & CHARGER	192

RYOBI

BT3000S	10" TABLE SAW WITH STAND	549
AP12	12" PORTABLE PLANER	419
TSS220	8 1/2" SLIDE COMPOUND MITR SAW	479
TS-380	15" MITER SAW	369
OSS450	OSCILLATING SPINDLE SANDR	174
D38VSR	3/8" VSR DRILL, 4.0 AMP, 0-2500 RPM	59

SUPER SPECIAL! $189

636 OSCILLATING TRIANGULAR SANDER
INCLUDES CASE & PAPER ASSORTMENT

DELTA

22-540	12" BENCH TOP PLANER	409
28-180	BENCH TOP BAND SAW	179
31-080	1" BELT 5" DISC SANDER	99
31-460	4" BELT 6" DISC SANDER	129
33-060	NEW SIDEKICK 6 1/2" FRAME & TRIM SAW	379
37-070	*NEW* 6" VS BENCH JOINTER	259
40-560	16" SCROLL SAW, 2 SPEED	179
50-075	DUST COLLECTOR SWEEPER, 3/4 HP	254
50-175	*NEW* KICKSTAND PRTBL WORK STAND	179

Milwaukee

0406-1	9.6V KYLS CDLS DRILL KIT W/ 2BAT, CS	184
0407-1	SAME AS ABOVE BUT 12 VOLT	199
6010	1/2 SHEET FINISHING SANDER	126
6017	1/4 SHEET FINISHING SANDER W/ BAG	56
6125	5" RANDOM ORBIT SANDER	117
6126	6" RANDOM ORBIT SANDER	120
6256	TOP HANDLE JIG SAW	148
6365	7 1/4" CIRCULAR SAW, 13 AMP	122
6490	10" MITER SAW	257
6491	10" MITER SAW W/ BAG & 80T BLADE	298
6492	10" MITER SAW KIT COMPLETE	334
6507	VAR SPEED SAWZALL W/ BLADES & CSE	145
6508	SAME AS 6507 BUT W/ PERMANENT CRD	145
6527	SUPER SAWZALL W/ BLADES & CASE	174
6528	SAME AS 6527 BUT W/ PERMANENT CRD	174

AEG

TXE150	6" VS DUST FREE RANDOM ORBIT SANDER W/ VELCRO PAD	$144

DeWALT

DW100	3/8" DRILL, 0-2500 RPM, 4 AMP	68
DW318K	4.5 AMP HVY DTY JIG SAW KIT W/ CS	149
DW360	7 1/4" SAW W/ BRAKE	152
DW430	3" X 21" DUSTLESS BELT SANDER	164
DW431	3" X 21" DSTLS BELT SANDER VAR SP	182
DW610	1 1/2 HP ROUTER, 9 AMP	147
DW614	1 1/4 HP PLUNGE ROUTER	143
DW615	1 1/4 HP PLUNGE ROUTER, VAR SP	158
DW624	3 HP HVY DUTY PLUNGE ROUTER	245
DW625	3 HP HVY DTY PLUNGE RTR, VAR SP	275
DW682K	BISCUIT JOINER KIT W/ 100 BISCUITS	234
DW705	12" COMPOUND MITER SAW	389
DW944K2	9.6V CORDLESS KIT W/ 2 BATTERIES	169
DW945K2	12V CORDLESS KIT W/ 2 BATTERIES	189

HITACHI

D10DFKBE	9.6V, CRDLS DRILL KIT W/ 2BAT & CS-KYLS	143
09V07WAKE	12V CORDLESS DRILL KIT W/ 2 BAT	189
D10VC	3/8" DRILL VAR SP, REV, 3.2 AMPS	59
SV12SA	4 3/8" PALM GRIP SANDER	54
SB75	3"x21", 2 SPEED BELT SANDER	139
SB10T	4"x24", 2 SPEED BELT SANDER	184
CJ65V2	TOP HANDLE JIG SAW W/ CASE	158
P20SB	3 1/4" PLANER, 3.4 AMP	89
TR6	LAMINATE TRIMMER	92
M8V	VAR SPEED PLUNGE ROUTER, 1/4"	149
TR12	3 HP PLUNGE ROUTER	184
M12V	3 HP VAR SPEED PLUNGE ROUTER	232

BOSCH

ALL BOSCH ROUTER BITS ARE 40% OFF OF LIST PRICES!

1001VSR	3/8" 1100 RPM DRILL	88
1021VSR	3/8" 1100 RPM DRILL	115
1194VSR	1/2" VSR, 2 STAGE HAMMER DRILL	146
1272D	3" X 24" DUSTLESS BELT SANDER	205
1273D	4" X 24" DUSTLESS BELT SANDER	210
1273DVS	4" X 24" VS DUSTLSS BELT SANDER INCLUDES 10 FREE BELTS	229
1370DEVS	6" VS DSTLS RNDM ORB SNDR	239
1584VS	CLIC BARREL HANDLE JIG SAW, VS INCLUDES FREE CASE	157
1587VS	TOP HANDLE JIG SAW, VS W/ CASE	162
1604	1 3/4 HP ROUTER W/ FREE CASE	137
1608	LAMINATE TRIMMER	95
1609KX	DELUXE INSTALLERS KIT W/ 4 BASES	229
1613EVS	2 HP VAR SP PLUNGE ROUTER INCLUDES FREE EDGE GUIDE	199
1614EVS	1 1/4 HP VAR SP PLUNGE ROUTER	159
1615EVS	3 1/4 HP VAR SP PLUNGE ROUTER	269
1655	7 1/4" CIRCULAR SAW	114
3050VSRK	9.6 V, VSR CRDLS DRILL W/ 2 BAT, CS	149
3282DVS	5" VS DUSTLESS RANDOM ORBIT	95

Emglo

AM78HC4V 1 1/2 HP COMPRESSOR $299.00

SKIL

77	7 1/4" WORM DRIVE CIRCULAR SAW	145
1605-02	BISCUIT JOINER WITH CASE & FREE GLUE SYSTEM	139
2736-04	12V VSR CORDLESS DRILL KIT WITH 15 PIECE BIT SET	147
3400	10" TABLE SAW W/ FREE CARB BLADE	179
5657	7 1/4" CIRCLE SAW W/ 6 CARBIDE BLDS	119
5860	8 1/4" WORM DRIVE SAW	172
9410	4 1/2" DISC GRINDER	59

MIRKA Abrasives, Inc.

	5" SOLID PSA PAPER - 100 PER ROLL 80 - 320 GRIT	$12.95
	5" HOLED PSA PAPER - 100 PER ROLL FOR PORTER CABLE 5" HOLED PADS - 80 - 320 GRIT	12.95
	6" SOLID PSA PAPER - 100 PER ROLL 80 - 400 GRIT	15.95
	6" HOLED PSA PAPER - 100 PER ROLL FOR PORTER CABLE 6" HOLED PAD 80 GRIT	17.95
	100 - 320 GRIT	16.95
	5" HOOK & LOOP PAPER FOR PORTER CABLE 5" HOOK & LOOP PADS - 50 PER BOX 80 - 320 GRIT	10.95
	5" HOOK & LOOP PAPER FOR BOSCH 3283DVS 50 PER BOX 80 - 320 GRIT	10.95
	6" HOOK & LOOP PAPER FOR BOSCH 1370DEVS 50 PER BOX 80 - 320 GRIT	12.95

freud

FREUD ROUTER BITS ARE 40% OFF OF LIST PRICES!

JS100	BISCUIT JOINER	164
JS100K	BISCUIT JOINER W/ 1000 BISCUITS	187
FT2000E	3 1/4 hp PLUNGE ROUTER VS	205
EB100	EDGE BANDING SYSTEM	208
FC107	7 PC CARBIDE FORSTNER BIT SET	84
F410	10" X 40T QUIET BLADE	53
F810	10" X 80T QUIET BLADE	75
LM72M010	10" X 24T FLAT TOP RIP BLADE	36
LU82M010	10"X 60T CROSSCUT RIP BLADE	49
LU84M010	10" X 50T ATB COMBO BLADE	42
LU85M010	10" X 80 T ATB FOR MIRROR FINISH!	58
LU87M010	10" X 24T RIP BLADE THIN KERF	39
LU88M010	10" X 60T CROSSCUT THIN KERF	46
LU89M010	10" X 72T TCH NON FERROUS METAL	57
LU92M010	10" X 80T TCH - BEST FOR LAMINATES	59
LU94M010	10" X 80 T TCH PLEXIGLASS BLADE	58
LU98M010	10" X 80 T TCH LAMINATES OR WOOD	67
SD308	8" SAFETY DADO WITH CASE	116
SD508	*NEW 8" SUPER DADO SET*	199
TK206	10" X 24T THIN KERF RIPPING	25
TK306	10" X 40T THIN KERF COMBINATION	25
TK606	10" X 60T ATB COMPOUND MITER BLD	39
TK806	10" X 80T ATB ULTIMATE CROSSCT BLD	44
TK906	10" X 50T THIN KERF CROSSCUT	30
TK406	10" X 60T THIN KERF FINISHING	34
90-100	15 PC ADVANCED ROUTER BIT SET	159
91-100	13 PC ROUTER BIT SET	179
94-100	CABINET DOOR SET, 1/2" SHANK	158
95-100	5 PC CABINET & MOULDING BIT SET	199

Jorgensen

ITEM	JAW LENGTH	OPEN CAP	OUR PRICE EACH	BOX OF 6
ADJUSTABLE HANDSCREWS				
#0	6"	4 1/2"	12.10	62.90
#1	10"	6"	13.25	71.90
#2	12"	8 1/2"	15.35	82.90
STYLE 37 2 1/2" THROAT 1/4" x 3/4"				
3706	6"		6.50	36.50
3712	12"		7.00	39.50
3718	18"		7.50	42.50
3724	24"		8.50	45.50
3730	30"		9.50	51.50
3736	36"		10.50	57.50

PONY CLAMP FIXTURES

#50 ..... 3/4" BLACK PIPE CLAMPS 8.25
BOX OF 12 $92.00

#52 ..... 1 2" BLACK PIPE CLAMPS 6.90
BOX OF 12 $76.00

PONY SPRING CLAMPS - 3201HT 1" ... 1.25
3202HT 2" ... 1.79 3203HT 3" ... 3.99

AIRY

USES SENCO NAILS & STAPLES!

0241SK	18 GAUGE BRAD NAILER 3/8"-1 9/16" WITH CASE & 5000 NAILS (SAME AS SLP20)	109
0250SK	18 GAUGE BRAD NAILER 3/4"-2" W/ CASE & 5000 NAILS	184
0565T	ANGLE FINISH NAILER 1"-2 1/2" (SAME AS SFN1 & SFN2!)	214
0626SK	NARROW CROWN 1/4" STAPLER 1/2"-1" WITH CASE & 5000 STAPLES	119
0645S	NARROW CROWN 1/4" STAPLER 3/4" - 1 3/4" CAPACITY	189
8290	STICK FRAMING NAILER - 6 TO 16 PENNY CAPACITY. COMPATIBLE W/ SENCO OR HITACHI NAILS	319

INTERNATIONAL TOOL CORPORATION

1939 TYLER STREET, HOLLYWOOD, FLORIDA 33020

1-800-338-3384

- FREE FREIGHT & SAME DAY SHIPPING ON MOST UPS ORDERS OVER $25.00 MINIMUM PURCHASE WITHIN THE CONTINENTAL U.S.A.

©

QUANTITIES LIMITED - NOT RESPONSIBLE FOR TYPOGRAPHICAL ERRORS - PRICES SUBJECT TO CHANGE WITHOUT NOTICE

FAX US YOUR ORDER AT 1-305-927-0291

MLCS

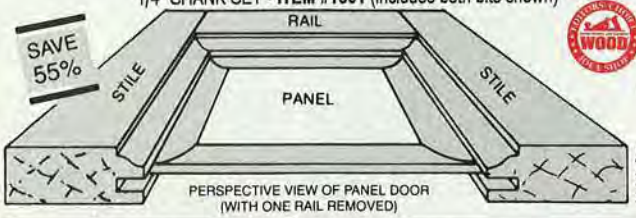
MAKE BEAUTIFUL RAISED PANEL DOORS WITH YOUR . . . 1/4" or 1/2" ROUTER . . . 1/2" or 3/4" SHAPER

Professional production quality bit makes it quick and easy to produce matching rails and stiles — the panel raising bit with ball bearing guide makes the raised panel perfect every time.

SALE PRICE FOR COMPLETE SET $69.95 Regular value over $150.00!

1/4" SHANK SET - **ITEM #1301** (includes both bits shown)

SAVE 55%



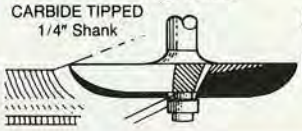
PERSPECTIVE VIEW OF PANEL DOOR (WITH ONE RAIL REMOVED)

SET ALSO AVAILABLE IN 1/2" SHANK - **$79.95 - ITEM #1302**

RAISED PANEL BIT SUPPLIED WITH BALL BEARING

2" Large Diameter

CARBIDE TIPPED 1/4" Shank

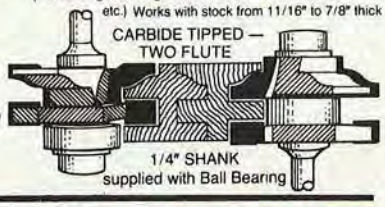


Shaper Cutters set: **Item #1303** SAVE! only **$99.95** Set: Rail & Stile & Raised Panel Cutters

REVERSIBLE COMBINATION RAIL and STILE BIT

(For making matching rails and stiles in raised panel doors, etc.) Works with stock from 11/16" to 7/8" thick

CARBIDE TIPPED — TWO FLUTE

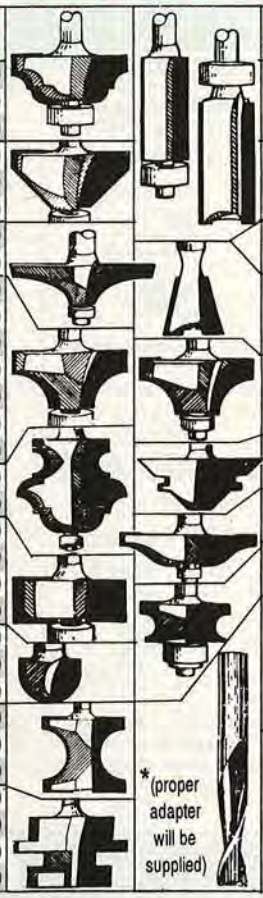


1/4" SHANK supplied with Ball Bearing

CARBIDE TIPPED ROUTER BITS • PROFESSIONAL PRODUCTION QUALITY *GUARANTEED*

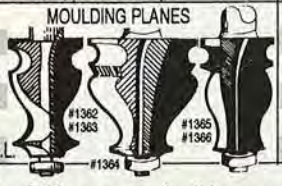
WHEN ORDERING ANY THREE OR MORE *DEDUCT $1.00 EACH.* • FREE SHIPPING IN CONTINENTAL U.S.

ITEM NUMBER	DESCRIPTION (ALL 2 FLUTE)	SHANK SIZE	PRICE
#1306	CLASSICAL - 3/16" Radius — 5/8" Cutting Length	1/4"	$22.50
#1307	CLASSICAL - 1/4" Radius — 3/4" Cutting Length	1/4"	$25.00
#1308	CLASSICAL - 3/16" Radius — 5/8" Cutting Length	1/2"	$22.50
#1309	45° CHAMFER - 3/8" Cutting Length	1/4"	$13.00
#1310	45° CHAMFER - 5/8" Cutting Length NEW !	1/4"	$15.00
#1311	45° CHAMFER - 5/8" Cutting Length	1/2"	$17.00
#1312	THUMBNAIL - 1- 3/16" Large Diameter	1/4"	$18.50
#1313	THUMBNAIL - 2- 5/8"Large Diameter	1/2"	$35.00
#1314	ROUND OVER - 1/8" Radius	1/4"	$11.00
#1315	ROUND OVER - 3/16" Radius	1/4"	$11.00
#1316	ROUND OVER - 5/16" Radius	1/4"	$14.00
#1317	ROUND OVER - 1/4" Radius NEW !	1/2"	$12.00
#1318	ROUND OVER - 3/8" Radius	1/2"	$15.50
#1319	ROUND OVER - 1/2" Radius	1/2"	$17.00
#1320	ROUND OVER - 3/4" Radius	1/2"	$21.00
#1321	MULTIFORM MOULDING - 15/16" Carbide Height	1/4"	$40.00
#1322	MULTIFORM MOULDING - 2" Carbide Height	1/2"	$40.00
#1323	SLOT CUTTER - 3/8" Deep	1/4"	$14.00
#1324	RABBETING - 1/4" Deep NEW !	1/4"	$15.00
#1325	RABBETING - 3/8" Deep	1/4"	$13.00
#1326	RABBETING - 3/8" Deep	1/2"	$13.00
#1327	CORE BOX - 3/8" Large Diameter	1/4"	$11.00
#1328	CORE BOX - 1/2" Large Diameter	1/4"	$13.00
#1329	CORE BOX - 3/4" Large Diameter	1/4"	$15.00
#1330	BULL NOSE - 1/2" Diameter of Circle	1/4"	$16.00
#1331	BULL NOSE - 3/4" Diameter of Circle	1/4"	$21.00
#1332	BULL NOSE - 3/4" Diameter of Circle	1/2"	$21.00
#1333	TONGUE & GROOVE - Straight	1/4"	$29.00
#1334	TONGUE & GROOVE - Straight	1/2"	$29.00
#1335	TONGUE & GROOVE - Wedge	1/4"	$29.00
#1336	TONGUE & GROOVE - Wedge	1/2"	$29.00



*(proper adapter will be supplied)

ITEM NUMBER	DESCRIPTION (ALL 2 FLUTE)	SHANK SIZE	PRICE
#1337	FLUSH TRIM - 3/8" Diameter — 1" Cutting Length	1/4"	$ 7.50
#1338	FLUSH TRIM - 1/2" Diameter — 1" Cutting Length	1/4"	$ 8.00
#1339	FLUSH TRIM - 1/2" Diameter — 1-3/16" Cut. Length	1/2"	$ 8.00
#1340	PATTERN / FLUSH TRIM - 1" Cutting Length	1/4"	$15.00
#1341	PATTERN / FLUSH TRIM - 1" Cut. Length NEW !	1/4"	$17.00
#1342	PATTERN / FLUSH TRIM - 1" Cutting Length	1/2"	$19.00
#1343	KEYHOLE CUTTER - 3/8" (bit not	1/4"	$ 8.50
#1344	KEYHOLE CUTTER - 1/2" shown)	1/4"	$ 9.00
#1345	DOVETAIL (HSS) - 1/4" Diameter — 7-1/2°	1/4"	$ 6.50
#1346	DOVETAIL - 1/2" Diameter — 14° NEW !	1/4"	$ 6.00
#1347	DOVETAIL - 1/2" Diameter — 14°	1/2"	$ 6.50
#1348	BEADING - 1/4" Radius	1/4"	$13.00
#1349	BEADING - 3/8" Radius	1/4"	$15.50
#1350	BEADING - 1/2" Radius	1/4"	$17.00
#1351	LOCKMITRE - 7/8" Cutting Length NEW !	1/4"	$32.00
#1352	LOCKMITRE - 1-1/8" Cutting Length	1/2"	$45.00
#1353	OGEE RAISED PANEL - 2" Large Diameter	1/4"	$28.00
#1354	OGEE RAISED PANEL - 2-3/4" Large Diameter	1/2"	$32.95
#1355	EDGE BEADING - 3/16" Diameter of Circle	1/4"	$15.00
#1356	EDGE BEADING - 5/16" Diameter of Circle	1/4"	$15.50
#1357	SPIRAL UPCUT - 1/8" Diameter (solid carbide)	1/4"*	$ 9.00
#1358	SPIRAL UPCUT - 1/4" Diameter (solid carbide)	1/4"	$12.00
#1359	SPIRAL UPCUT - 1/4" Diameter (solid carbide)	1/2"*	$12.00
#1360	SPIRAL UPCUT - 3/8" Diameter (solid carbide)	1/2"*	$24.00
#1361	SPIRAL UPCUT - 1/2" Diameter (solid carbide)	1/2"	$29.00
	MOULDING PLANES		
#1362	1" C.L.	1/4"	$24.95
#1363	1-5/8" C.L.	1/2"	$29.95
#1364	1-5/8" C.L.	1/2"	$31.95
#1365	1" C.L.	1/4"	$31.95
#1366	1-11/16" C.L.	1/2"	$31.95



***FREE* — NEW 40 PAGE CATALOG • While in the Philadelphia Area Visit our Fully Stocked Showroom** *(call for easy directions)*

CONTROL THE SPEED OF YOUR ROUTER

ROUT AT THE SPEED THAT GIVES THE BEST RESULTS WITH THE WOOD AND BIT YOU ARE USING!

~~$39.95~~ **SALE $29.95** Order Item #1304 *Free Shipping in Continental U.S.*

FEATURES:

- **Works With All Routers 3¼ HP or less - 120V 15 Amp.**
- **Full Horsepower and Torque at All Speeds.**
- **Gives Your Router a Feature Only Available on Routers Costing Hundreds of Dollars!**

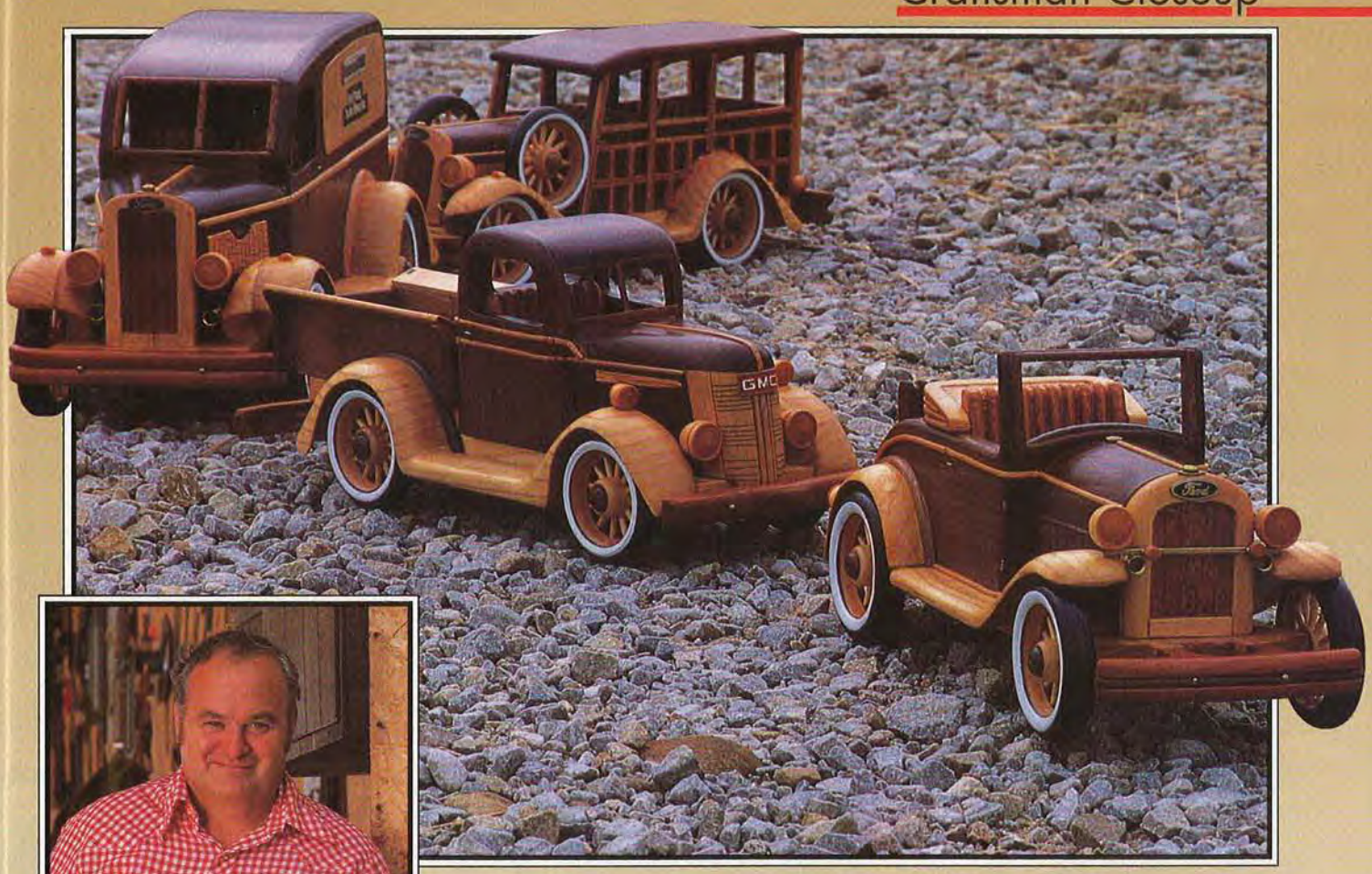
FORSTNER BITS

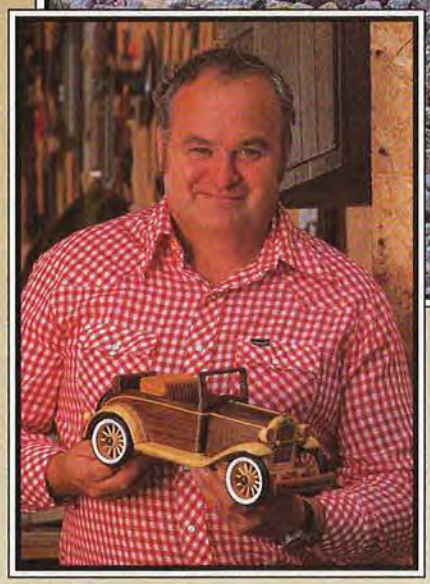
For *Perfect* Holes

Forstner bits are designed to drill flat bottom or through holes cleanly in end grain, thin stock, veneers and regular stock. Comes with its own attractive wood box and includes the following sizes: 1/4", 3/8", 1/2", 5/8", 3/4", 7/8", 1", 1 1/8", 1 1/4", 1 3/8", 1 1/2", 1 5/8", 1 3/4", 1 7/8", 2", 2 1/8". ***Special Sale* $79.95** Regularly $99.95 **16 Piece Set** Order Set #1305 *Free Shipping in Continental U.S.*

©1993

To order by Master Charge, Visa, or Discover Call Toll Free, 7 Day - 24 Hour Order Service **1-800-533-9298** or send check to: **MLCS Ltd. P.O. Box 4053 DX, Rydal, PA 19046**





THE DETAIL MASTER KEEPS THEM ROLLIN'

Tom Rolison can't help referring to vehicles he long ago sold as if they were still in his inventory of wooden cars, trucks, trains, planes, and steam engines. That's because he pours so much of himself into his work he can't forget them. "I have this '32 Chevy roadster, made with white ash fenders and a black walnut cowl...," he'll say as he fondly recalls detail after detail. But if it wasn't for a near financial catastrophy a number of years ago, his woodworking memories might not be quite so pleasant.

Tom, 50, was born, reared, married, and raised a family in Scottdale, Pennsylvania. That's a town of about 12,000 situated square in the middle of the nation's once prosperous steel industry region. For 23 years he had held down a job at a nearby mill—a job that started with laying track for the company's railroad and that ended in the yard as a car-shop repairman when the mill suddenly closed down. There wasn't much warning, but as Tom says, "You could pretty well see the handwriting on the wall." For a career replacement, he promoted his woodworking hobby to full-time status.

A future found in a magazine

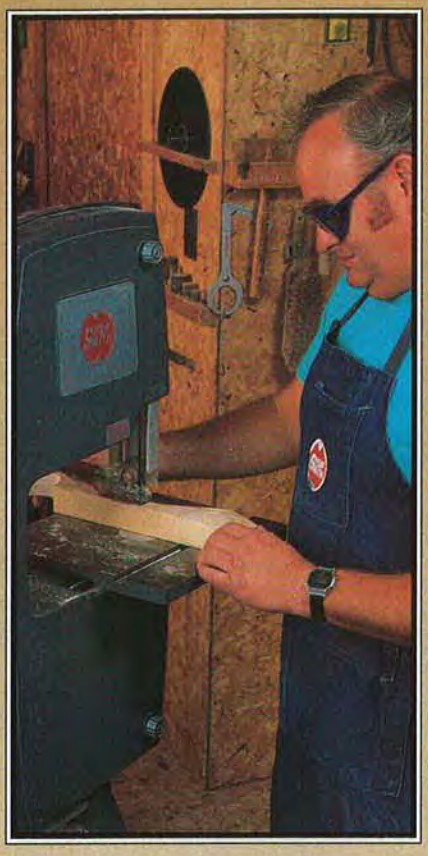
"It was in one of the very first issues of *WOOD,*" recalls Tom, flipping through a pile of periodicals. "Yep, here it is." He holds up the 1984 Nov./Dec. issue of *WOOD®* magazine. And turning to an article called "Heirloom Toys," he says, "I looked at Steve Baldwin's [an Omaha, Nebraska, craftsman] trucks, cars, and trains made out of pretty dark and light woods and thought, 'I can do that.' That was back in 1986. Well, I've improved some since then." Indeed. Especially when he gets down to details.

Please pass the ammunition and other recyclables

Pointing to a model of a 1930s Packard, Tom says, "That brass

Continued

Print this article



Above: **At his Shopsmith bandsaw, Tom cuts out the fenders for a vintage vehicle from white oak that he saved especially for that role.**

Right: **Tom even built the tracks on which his 1856 Tiger steam engine and tender ride. See if you can find familiar fittings—such as the drawer-pull plate—that Tom used as trim on the engine.**

horn there started out as a .22-caliber shell casing. You'd never know unless I told you, right?" He almost laughs.

On close inspection, the past life of the tiny fluted horns on the vintage auto he holds becomes evident. And a glance at the contents of a jar on his bench top tells you that they're not one of a kind. Tom has hundreds of the casings of various lengths.

"I just flare them out by light tapping with a hammer on a cone-shaped piece of metal that I insert in the end," Tom explains. "I have to go really slow, though, or they'll split."

In addition to the shell casings, this master of detail features many other common items in his vehicles. On his steam engine, for example, you'll find small brass fittings normally more at home as gas-line couplings. Compression rings, the type used in connecting faucets to water lines under the kitchen sink, find a new home in a steam-whistle assembly. The same applies to brass brads, tiny brazing rods, wire, and even drawer-pull plates (check out the ornate faceplate on the steam engine's boiler in the photo *below*). Tom admits that he never throws anything out before thoroughly examining it for another potential use.

Yet, the steelworker-turned-woodworker doesn't hesitate to mail-order parts that seem perfect. He points to the wheels on the Mack trailer truck he's perfecting. "I've got $30 worth of tiny bolts that serve as lug nuts on this one project alone."

Anything with wheels is fair game

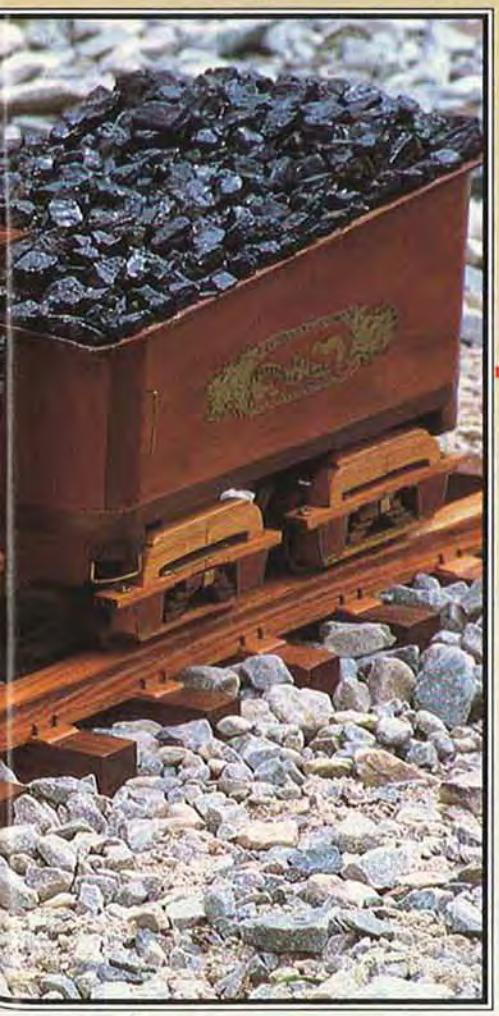
Tom's list of cars and trucks that he's crafted over the years reads like the inventory of an antique car collector. On it you'll find Ford pickups, roadsters, and woodies from the 1920s and 1930s, Chevies (including a '57 convertible) and GMCs of the same vintage, a Pontiac or two, a Stutz Bearcat, a Duesenberg, even a Mercedes and a Bugatti. There are 18-wheelers, too—Peterbilts and Freightliners, not to mention the Mack shown on *page 34*.

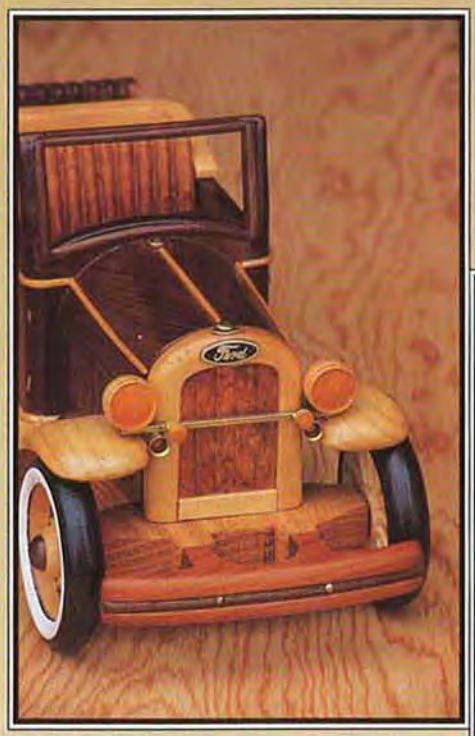
Tom also likes the intracies of old-time steam engines. He has built a model of The General, a

Civil War era steamer, one of The Denver Express, and the 1856 Tiger, an engine right out of Pennsylvania history.

He even looks skyward on occasion. "I carved a P-51 Mustang awhile back, and I mean carved it," says Tom as he starts to describe the process. "To taper the wings just right, I took the wood off with a spokeshave. And that was a lot of work. But that's the only way I know of to do it." Tom's photo album also reveals a beautiful B-17 bomber, executed in walnut and ash, a Cobra helicopter, and a P-40 Flying Tiger.

Tom admits that he orders plans for many of his vehicle models, but they prove to be only a starting point. Because from there, he relies on photographs he takes, old advertising brochures, calendars, and even close, personal inspections of vehicles. "I was working on a semi-trailer truck—maybe the Mack—and I saw one at a truck stop," he recalls. "So, I was out there poking around the cab, seeing what details I could pick up, and out of nowhere the driver appears. He was big, and a little concerned with what I was doing. But," Tom chuckles, "when I showed him pictures of my models, he just grinned and told me to go ahead and photograph all that I wanted to. You know, it's all those little details, often personal ones, that make my work special." And it's Tom's attention to those special details that often leads to good commissions.





Left: The Ford emblem on the radiator, the carved tufting on the seats, the tiny hood moldings—all contribute to the appeal of Tom's cars.

Below: A .22 caliber shell casing finds its way onto this panel delivery truck as a gas tank filler tube. The walnut doors open on tiny hinges.

"A lady from Illinois came by my booth at a big show," Tom says as he begins another story. "Seems she had a grown son with a birthday coming up and wanted to give him one of my trucks, but a special one. Apparently, he had worked his way through college doing odd jobs with the help of an old pickup truck, a 1949 International Model K. She had a photo of it. I had to combine parts I was familiar with to make it—a little bit of Chevy body and a little Ford cab—but I did it, out of cherry, complete with the signage he had had on it! Was she ever thrilled!"

Detailing, it seems, could go on forever. So how does he know when to quit? "It's really hard," says Tom, with somewhat of a grimace. "I think I'm all finished with a vehicle, and then I see one going down the road with another detail that I'd like to put on. But I have to draw the line."

Here a collector, there a collector

At $275 to $400 for a car or pickup truck, up to $700 for an airplane, $2,000 for a semitrailer truck like the Mack shown, and as much as $2,500 for a train, how many buyers can there be? According to Tom, the number of folks who want his trucks and other models would surprise you.

Continued

"There are some of my models in Florida, New York, Ohio, Maryland, Kentucky—they're just about all over," says Tom. "And some people have really turned to collecting them."

With righteous pride, Tom tells how he sold his first Peterbilt semi to the owner of the company that makes the transmission parts used on the real truck. That was five years ago. Now, the buyer has about five of his vehicles. Then there's the collector who lives in the Florida Keys. An ex-pilot, he owns many of Tom's aircraft and always asks for more. And at one particular show, a certain buyer couldn't get enough of Tom's work, all the while trying the craftsman's patience.

"This older fellow was looking at my work and talking about this and that. Eventually, he tried to talk my prices down," Tom remembers. "So I told him my motto, 'B.S. walks, money talks.' Guess what? He pulled a wad of bills out of his pocket and peeled off enough of them for all the cars I had with me—and that was at least seven!"

It pays to be particular

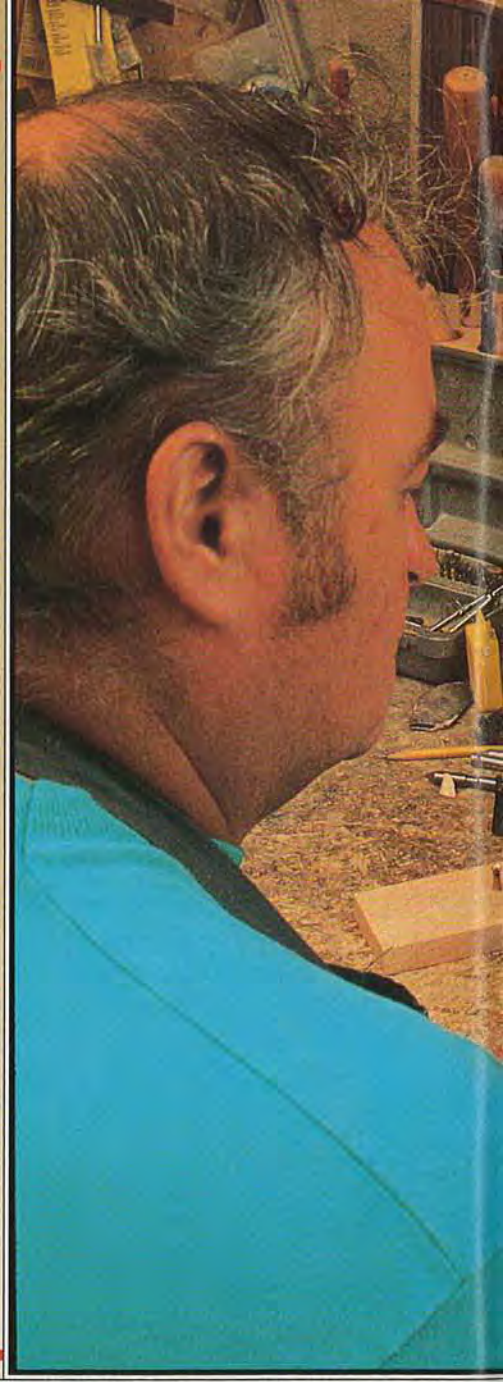
Tom and his wife, Edna, work arts and crafts shows from June through October. During that time, they might be gone as much as every weekend selling Tom's work—without ever leaving the state of Pennsylvania. Such a grueling schedule means that when Tom is at home, his focus must be strictly woodworking.

"I get so absorbed with what I'm doing in the shop that I don't even know when people come and go," Tom comments with a glance out to the road. "I'm really enjoying myself, though." It wasn't always like that.

"There was a time after I was laid off when if a project wasn't going just right, I'd lose my temper and the project would generally suffer," the craftsman continues. "Now, if I get frustrated with a project, I just put it in a box and set it aside for awhile and work on something else."

Edna knows her husband well, and understands why he sometimes gets annoyed with himself. "He's real particular about what he's making," she says. "But that's what makes his vehicles so popular." By "particular" Edna refers to everything from Tom's selection of wood to the finishing.

In Tom's shop, a separate building that adjoins the garage behind his house, wood lines the walls. "I buy most of my wood from a mill just a few miles away. But knowing that I like unusual wood, folks bring me some from time to time, and I do cut my own right around here," says Tom as he picks through an assortment of boards. "Here's some purple plum—that looks good for radiators. There's a piece of nicely grained white ash that I've saved for fenders." Tom could go on and on because there's yet another building—a storage shed—brimming with more odds and ends of wood. And no matter what species, where it's been stored, or for how long, Tom won't use it for a project if it



Right: **After shaping a wind wing from a tiny piece of brass, Tom carefully fits it in place on the '30 Packard.**

Below: **Tom just loves 18-wheelers. Working on it off and on, this 48"-long Mack took a year to build and has a $2,000 price tag.**

has more than eight percent moisture content.

Tom is real particular about veneer, too. He uses that for the panels that appear on the sides of some cars' cowels, and prefers to resaw it himself. That's because the typical veneer available commercially is just a little too thin and it buckles when glued up. "So to get thicker stock, I just run boards through my the tablesaw—easy as pie, no problem," he says with confidence.

Then, of course, there's the finishing. "Because we haul those vehicles around from fair to fair, the finish has to take a beating from the packing and unpacking and the handling, and still look good. So everything gets a coat of tung oil. Then it dries for a week or so before getting two coats of polyurethane varnish with sanding in between. Last, I rub on paste wax. You can bet that they'll take handling after that."♠

Fascinated by detail?
For more information on Tom's vehicles, send a self-addressed, stamped envelope to:
Rolison Woodcrafts
R.D. 1, Box 219
Scottdale, PA 15683

Written by Peter J. Stephano
Photographs: Steve Uzzell

Print this article

BANDSAW BLADES

What woodworkers need to know

The versatile bandsaw fits into the picture virtually everywhere in woodworking. From carving to furniture-making, you'll find tasks that a bandsaw does best. But, to get the most out of your machine, you're going to have to pick the best blade for the job. Here's how.

You need to know

You'll commonly find three tooth configurations: regular, skip-tooth, and hook-tooth.

A **regular-tooth** (or standard) blade makes the smoothest cut, and is the best bet for sawing thin material. But in thick cuts and resawing, it cuts slowly and clogs

The rule for bandsaw blades

Make the blade fit your machine and your job

Bandsaw blades, like suits, boots, and deli sandwiches, come in a wide variety, either off-the-rack or made-to-order. Many tool dealers, homecenters, and hardware stores sell ready-made blades to fit popular saws. But some custom-make them, cutting a length from a roll of bandsaw-blade stock and welding the ends together, often while you wait.

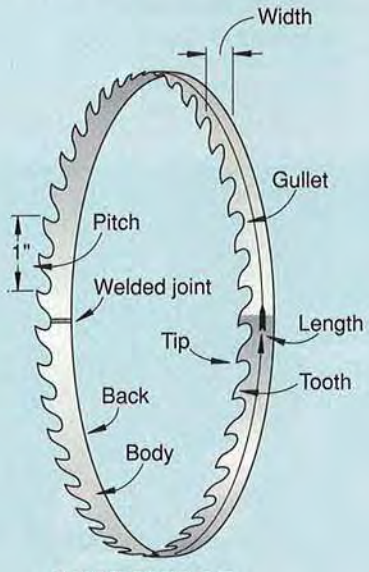
In either case, you first need to know your saw's blade length. Install a wrong-length blade and you may not be able to tension it properly, which could be hazardous to you, your saw, or your project—maybe all three.

Check your saw's instruction manual for the recommended length, or measure the factory-installed blade. Many dealers can find the right blade just by knowing your saw's make and model.

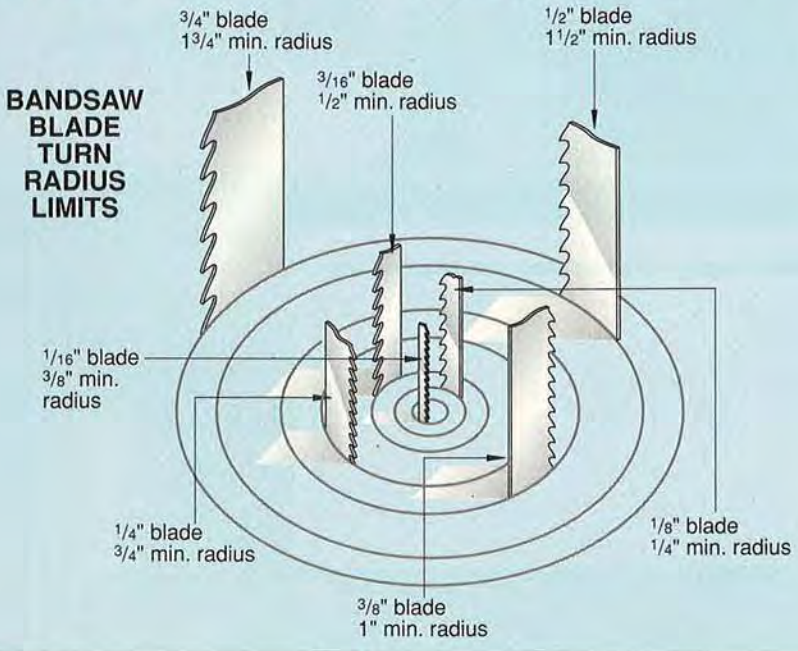
The type of cutting you'll be doing determines blade width, which may be from 1/16" up to 3/4" or even larger, depending on the machine. Your saw's manual specifies the narrowest and widest blades recommended.

For crosscutting, ripping, and resawing stock, install the widest blade your saw can take. You'll cut straighter, and be less likely to break the blade.

Curved cuts call for a narrower blade. The illustration *below* shows the minimum cutting radius for various blade widths. Pick the widest blade that will cut the smallest radius in the pattern you're sawing.



ANATOMY OF A BLADE



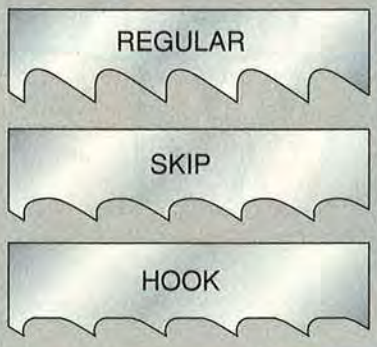
If you want one general rule for choosing the correct bandsaw blade, remember this: *Use the widest blade with the coarsest teeth that will make an acceptably smooth cut in your material.* Here's the information you need to apply this simple rule effectively.

the tooth

with chips, making it a poor choice for such operations.

A **skip-tooth blade**, as the name suggests, has teeth slightly farther apart and larger gaps for carrying chips away. This blade can handle faster feed rates than the regular blade. Turn to a skip-tooth blade for general cutting and resawing.

The teeth on a **hook-tooth** blade angle forward (in the direction of rotation) at the cutting tip. That is, they have a positive rake angle. This enables the hook-tooth blade to cut more aggressively than the others. This blade is well suited to straight and curved cutting in dense or hard woods.



You'll strike out with the wrong pitch

For woodcutting blades, the pitch, or the number of teeth per inch (TPI), falls between 3 and 24 TPI. Which pitch you need depends on the thickness of the material you're cutting.

The fewer the teeth in the wood, the faster (and rougher) the cut, generally. To lessen the chances of blade or tooth breakage, saw with a blade that keeps at least three teeth in the wood. More will yield a smoother cut, but a blade with too many teeth in the wood will cut slowly and dull rapidly. For the best balance between cutting speed and smoothness, pick a blade that keeps 6-12 teeth in the wood (see chart at *right*).

As on other saws, bandsaw teeth are set—bent to the sides—to saw a kerf slightly wider than the thickness of the blade body. The most common sets for woodworking bandsaw blades are alternate and raker, shown *below*.

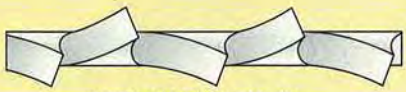
The raker-set blade has a repeating pattern of one tooth set to the right, one to the left, and then one, the raker, left unset. The set teeth cut the wood, and the rakers help clear away chips.

With an alternate-set blade, every tooth is set either left or right. Alternate-set blades cut faster, and some bandsaw users maintain that spreading the cutting load over all the teeth helps the blade stay sharp longer.

BLADE-PITCH SELECTION
(Rounded to nearest standard pitch)

Cutting thickness	Minimum pitch (TPI)	Optimum pitch (TPI)
1/8"	24	24
1/4"	14	24
3/8"	10	18, 24
1/2"	6	14, 24
3/4"	4	10, 14
1"	3	6, 10
2"	3	3, 6
3"	3	3, 4
Over 3"	3	3

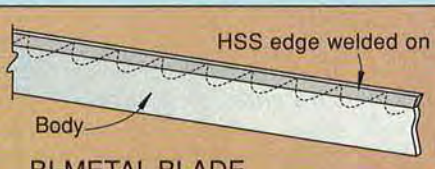
RAKER SET


ALTERNATE SET

Blades for big-time sawyers

Bi-metal blades, becoming more readily available to home woodworkers, offer a high-performance alternative to standard blades. High-speed steel (HSS) electron-welded to the edge gives each tooth a tough tip, shown *right*. These blades stand up to abrasion and heat that would dull a carbon-steel blade fast.

A bi-metal blade will set you back about three times the cost of a same-size standard blade ($30 vs. $11 in one comparison). But, it can save money (and time) in the long run by staying sharp longer than a standard blade. That's why we use bi-metal blades on the 14" Delta bandsaw in the *WOOD*® magazine shop.

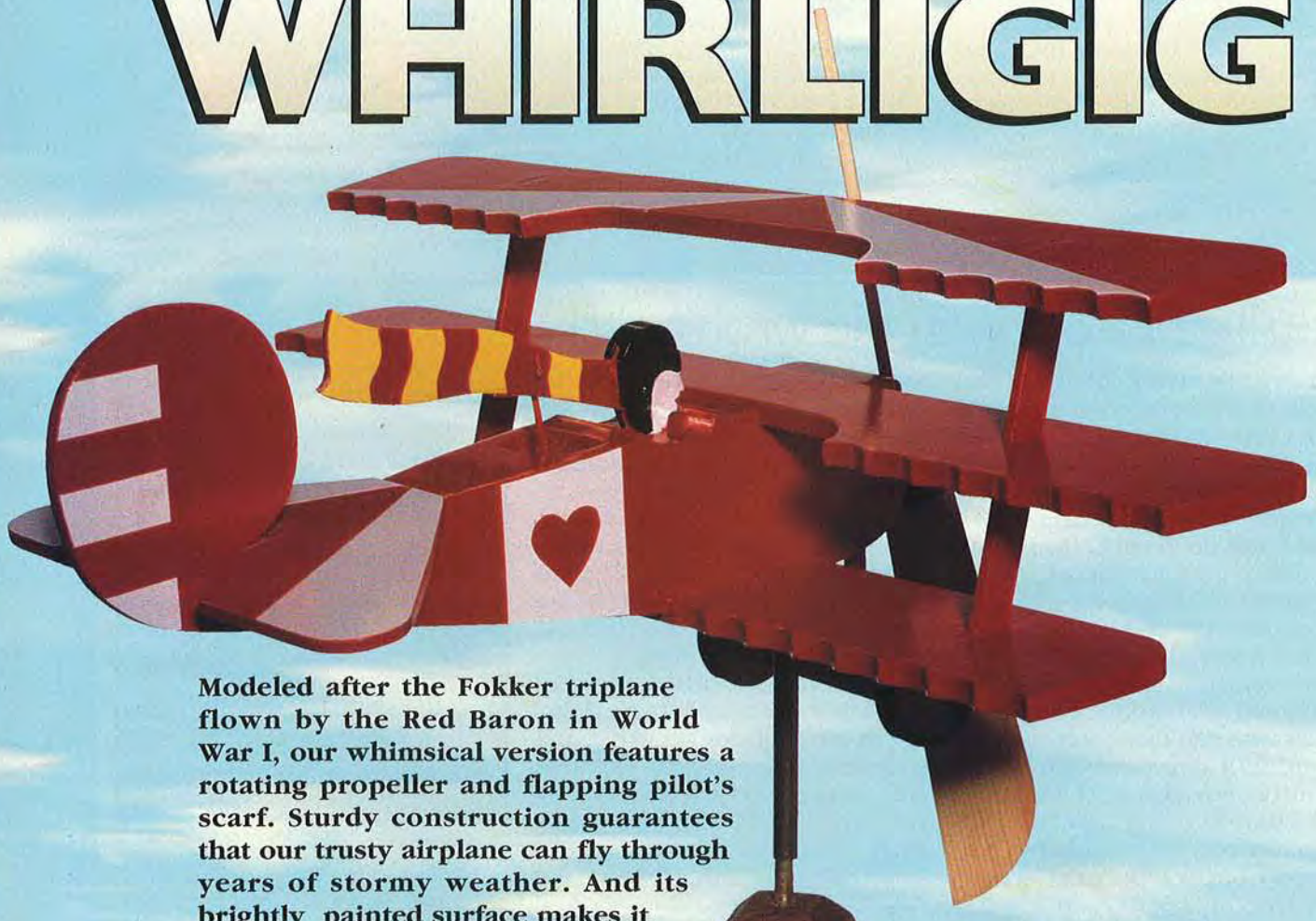


BI-METAL BLADE

Tougher yet is the carbide-tipped resaw blade, at about $100. Only if you resaw hard, abrasive woods in production quantities would you need one of these.

Continued on page 81

Ace-of-Hearts TRIPLANE WHIRLIGIG



Modeled after the Fokker triplane flown by the Red Baron in World War I, our whimsical version features a rotating propeller and flapping pilot's scarf. Sturdy construction guarantees that our trusty airplane can fly through years of stormy weather. And its brightly painted surface makes it a pleasure to look at, too.

Print this article

Note: *For joints that will stand up to the extremes of Mother Nature, use Titebond II or Weather-Tite water-resistant glues, slow-set epoxy, or resorcinol glue. Although we used clear pine for our model, Honduras mahogany is an excellent exterior alternative.*

Start with the laminated fuselage

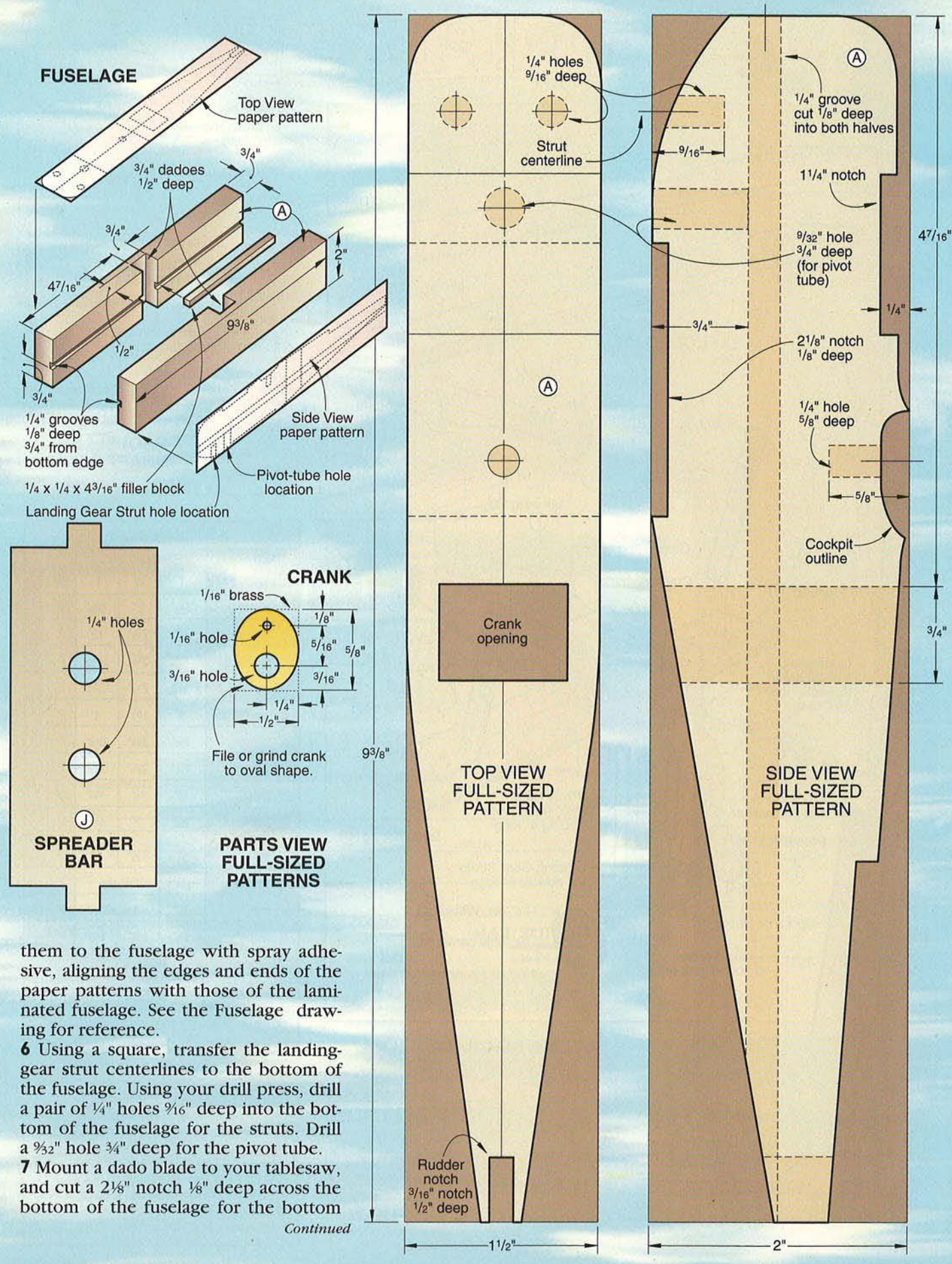
1 Cut a piece of ¾" stock to 2×20" long for the fuselage (A).

2 Cut a ¼" groove ⅛" deep ¾" from the bottom edge of the piece where shown on the Fuselage drawing. Crosscut two 9⅜"-long fuselage pieces (A) from the 20"-long piece. Next, cut a ¾" dado ½" deep in each piece where shown on the Fuselage drawing.

3 Cut a piece of pine to ¼×¼×4⅜6" to plug the crankshaft-tube groove behind the crank opening where shown on the Fuselage drawing.

4 With the edges and ends flush, the filler block in place, and dadoes and grooves aligned, glue and clamp the two ¾" fuselage pieces together.

5 Make a photocopy of the full-sized Side and Top View Patterns. Cut the rectangular paper patterns, and adhere



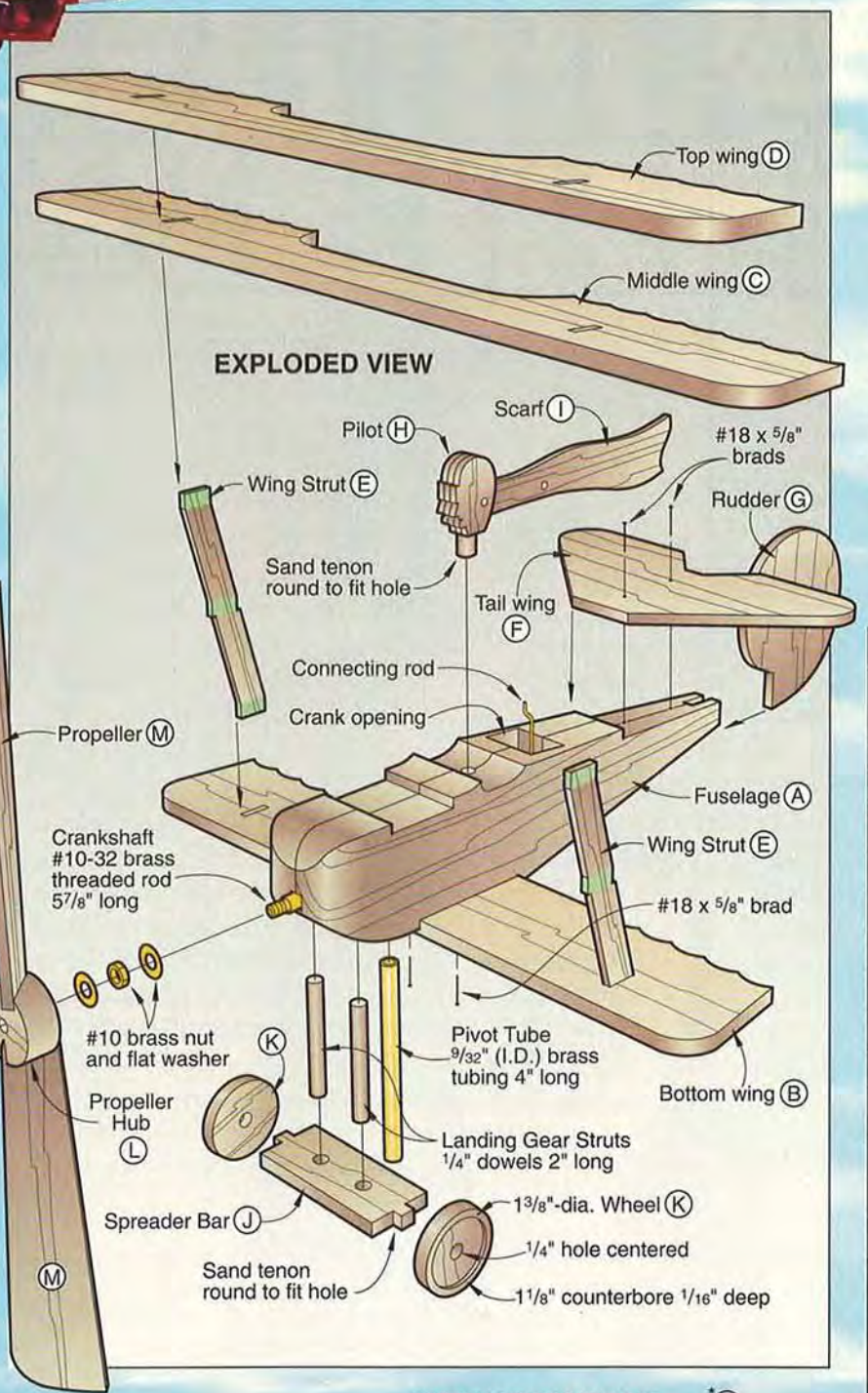
them to the fuselage with spray adhesive, aligning the edges and ends of the paper patterns with those of the laminated fuselage. See the Fuselage drawing for reference.

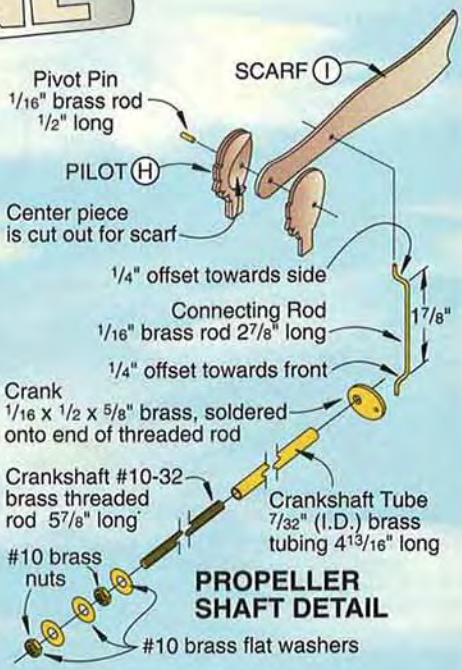
6 Using a square, transfer the landing-gear strut centerlines to the bottom of the fuselage. Using your drill press, drill a pair of ¼" holes 9⁄16" deep into the bottom of the fuselage for the struts. Drill a 9⁄32" hole ¾" deep for the pivot tube.

7 Mount a dado blade to your tablesaw, and cut a 2⅛" notch ⅛" deep across the bottom of the fuselage for the bottom

Continued

TRIPLANE




Pivot Pin 1/16" brass rod 1/2" long
SCARF Ⓘ
PILOT Ⓗ
Center piece is cut out for scarf
1/4" offset towards side
Connecting Rod 1/16" brass rod 27/8" long
17/8"
1/4" offset towards front
Crank 1/16 x 1/2 x 5/8" brass, soldered onto end of threaded rod
Crankshaft #10-32 brass threaded rod 57/8" long
Crankshaft Tube 7/32" (I.D.) brass tubing 413/16" long
#10 brass nuts
PROPELLER SHAFT DETAIL
#10 brass flat washers

Bill of Materials

Part	Finished Size T	W	L	Matl.	Qty.
A fuselage	1½"	2"	9⅜"	LP	1
B btm. wing	¼"	2⅛"	12"	P	1
C mdl. wing	¼"	2⅛"	14⅜"	P	1
D top wing	¼"	2⅛"	13⁹⁄₁₆"	P	1
E wing struts	⅛"	1½"	4"	P	2
F tail wing	³⁄₁₆"	3⅛"	6⅛"	P	1
G rudder	³⁄₁₆"	2¾"	3¼"	P	1
H pilot	⅜"	⅞"	1⅝"	LP	1
I scarf	³⁄₃₂"	1"	4¾"	P	1
J spreader bar	¼"	1⅛"	3"	P	1
K wheels	¼"	1⅜"-dia.		P	2
L hub	½"	1⅛"-dia.		P	1
M propeller	⅛"	1¼"	5½"	P	2

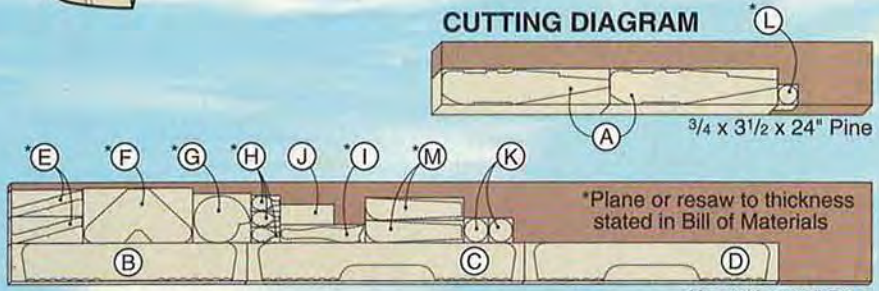
Materials Key: LP–laminated pine, P–pine.

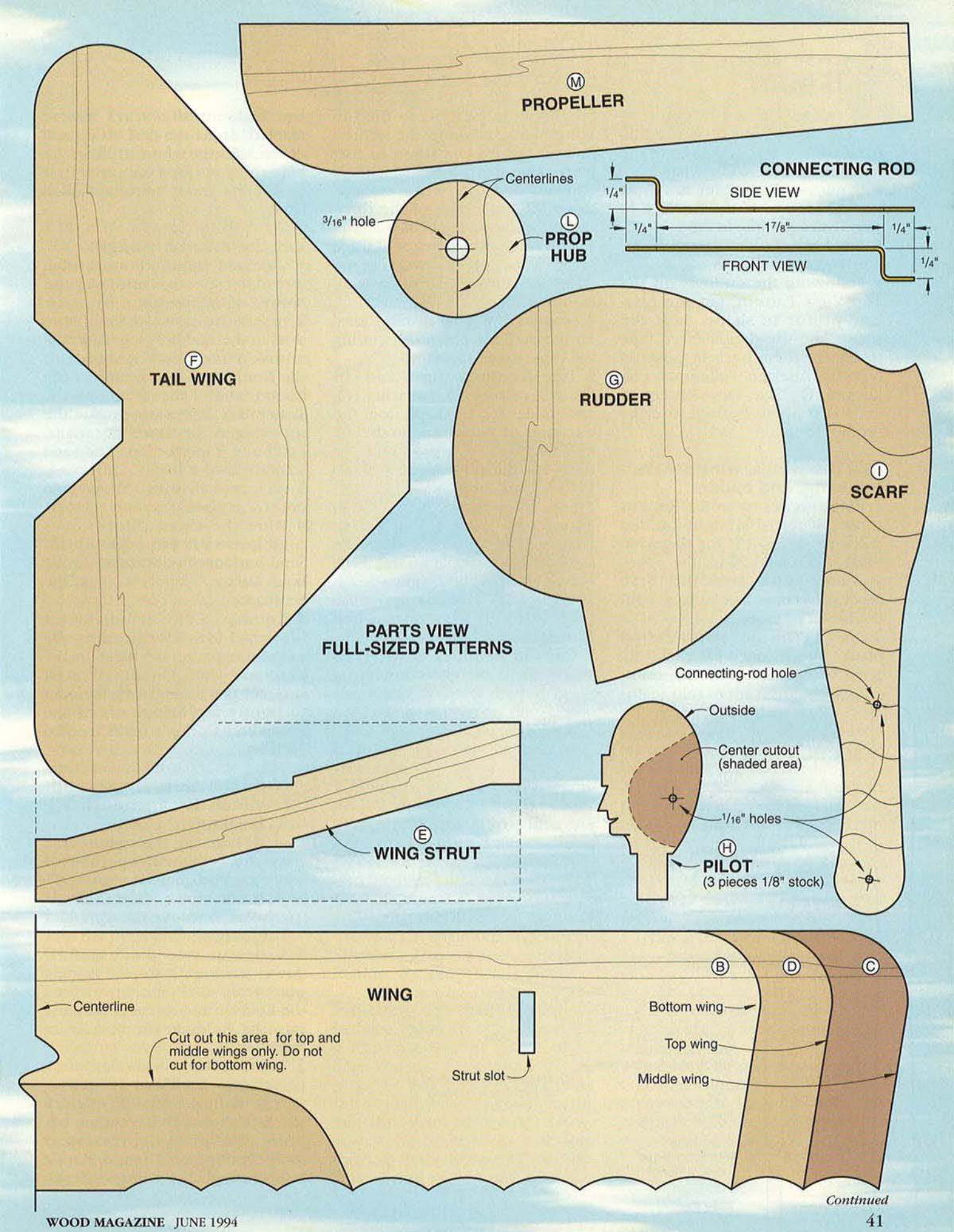
Supplies: double-faced tape, colored tape (3M plastic tape), solder, flux, ¼" dowel stock, slow-set epoxy, plus items listed in the Buying Guide.

Buying Guide

Whirligig hardware kit. 1/16" brass rod 6" long (connecting rod and pilot pivot pin), 1/16x1/2x4" solid brass (crank), #10-32 brass threaded rod 6" long (crankshaft), 7/32" (I.D.) brass tubing 413/16" long (crankshaft tube), 9/32" (I.D.) brass tubing 4" long (pivot tube), 1/4"-dia. brass rod 8" long (pivot pin and pivot tube plug), 2–#10 brass nuts, 3–#10 brass flat washers, #18x5/8" brads. Kit no. AP1, $14.95 ppd. Miller Hardware, 1300 M. L. King Parkway, Des Moines, IA 50314. Or call 515/283-1724 to order. No CODs please.

CUTTING DIAGRAM




Ⓜ
PROPELLER
CONNECTING ROD
SIDE VIEW
1/4"
1/4"
17/8"
1/4"
FRONT VIEW
1/4"
Centerlines
3/16" hole
Ⓛ
PROP HUB
Ⓕ
TAIL WING
Ⓖ
RUDDER
Ⓘ
SCARF
PARTS VIEW
FULL-SIZED PATTERNS
Connecting-rod hole
Outside
Center cutout (shaded area)
1/16" holes
Ⓗ
PILOT
(3 pieces 1/8" stock)
Ⓔ
WING STRUT
WING
Ⓑ
Ⓓ
Ⓒ
Centerline
Cut out this area for top and middle wings only. Do not cut for bottom wing.
Strut slot
Bottom wing
Top wing
Middle wing

Continued

wing. Cut a 1¼" notch to the depth shown on the full-sized pattern across the top of the fuselage for the middle wing.

8 Bandsaw the rudder notch in the tail section of the fuselage to size. Drill a ¼" hole in the cockpit. Next, bandsaw the cockpit outline to shape.

9 Following the cutlines on the Top View Pattern, cut the fuselage profile to shape. Save the scraps and use double-faced tape to adhere them back in position onto the fuselage. Follow the cutlines on the Side View Pattern to cut the top and bottom fuselage profiles to shape.

Cut the wings, wing struts, tail wing, and rudder

1 Plane or resaw and then cut three pieces of straight-grained stock to ¼×2⅛×15" for the wing blanks (B, C, D). With the edges and ends flush, stick the three pieces together face-to-face with double-faced tape.

2 Draw a centerline across the top blank. Twice (once for each full-sized trio of half patterns), transfer the wing patterns to the top wing blank, aligning the centerline on the paper pattern to that marked on the top blank. Using a bandsaw or scrollsaw, cut scallops along the back edge of the three taped-together wing blanks.

3 Drill blade start holes, and use a scrollsaw or coping saw to cut the strut slots through all three wing blanks to shape.

4 Separate the wing blanks, transfer the cutlines, and finish cutting the three wings to shape.

5 Transfer the patterns and cut the wing struts (E), tail wing (F), and rudder (G) to shape from the thickness of stock listed in the Bill of Materials.

6 To cut the pilot pieces (H) to shape, stack and tape three 1×4" pieces of ⅛" stock face-to-face. Transfer the pilot outline to the taped-together pieces, and cut the stack to shape. Separate the three pieces and cut the center section to final shape. See the Propeller Shaft detail for reference when cutting the pilot center to shape.

7 Cut the 3/32"-thick scarf (I) to shape. Drill the 1/16" connecting rod hole in the scarf where marked. Angle the drill bit up and down slightly when drilling the hole to allow the connecting rod to operate freely when installed later.

Let the assembly begin

1 Glue and nail the bottom wing into its respective notch in the bottom of the fuselage.

2 Insert the struts through the slots in the middle wing. Glue the middle wing/struts assembly to the fuselage. Glue and insert the bottom end of the struts into the slots in the lower wing. Glue the top wing to the top of the struts. Putty any imperfections and sand smooth.

3 Glue the tail wing (F) and rudder (G) in place.

4 Glue the three pilot pieces together with the edges flush. Sand bottom of pilot to fit into ¼" hole. Drill a 1/16" hole through the lamination.

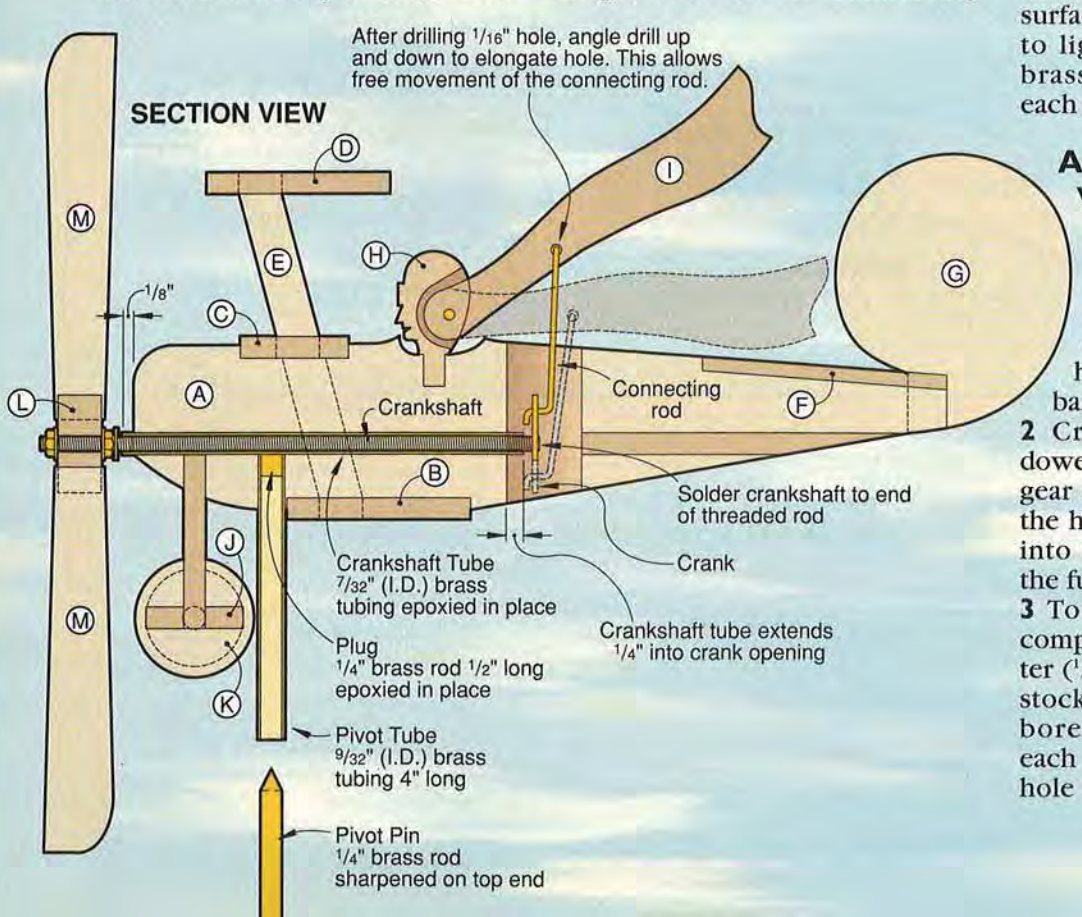
5 Cut a piece of 1/16"-diameter brass rod to ½" long. Insert the rod through the 1/16" holes in the head and scarf. On a hard metal surface, use a ball peen hammer to lightly tap both ends of the brass rod to rivet (mushroom) each end.

Add the axle, struts, and wheels for a smooth landing

1 Transfer the outline and the hole centerpoints for the spreader bar (J) to ¼"-thick stock. Drill the ¼" holes, and cut the spreader bar to shape.

2 Crosscut two pieces of ¼" dowel stock to 2" for the landing gear struts. Glue the dowels into the holes in the spreader bar, and into the holes in the bottom of the fuselage.

3 To form the wheels (K), use a compass to mark two 1⅜"-diameter (1 1/16" radius) circles on ¼"-thick stock. Using a 1⅛" Forstner bit, bore a 1/16"-deep depression at each centerpoint. Then, drill a ¼" hole through the center of each



wheel. Cut the wheels to shape. Sand the tenoned ends of the spreader bar until they fit into the holes in the wheels. Glue the wheels in place.

Machine the propeller for maximum power

1 To form the propeller hub (L), start by cutting a 1⅛"-diameter disc from a piece of ½" pine. Next, drill a 3/16" hole through the hub at the centerpoint.

2 Attach a wood extension to your miter gauge, and follow the 5 steps on Notching the Propeller Hub drawing at *right* and shown in the photo *below right* to cut the kerfs.

3 Cut the propeller blades (M) to shape. Next, glue or epoxy them to the propeller hub (L).

The metal parts convert wind energy to motion

1 Using the Propeller Shaft detail accompanying the Exploded View drawing and the Section View drawing for reference, cut all the brass parts except the crank to length. Drill the holes in one end of the crank blank (see the Parts View drawing for reference). It's safer drilling the holes in a long piece rather than the ⅝"-long finished piece. Crosscut the crank to length and file to shape.

2 Slide and epoxy the 7/32" (I.D.) brass tubing 4 13/16" long (crankshaft tube) into the fuselage until it protrudes into the crank opening where shown on the Section View drawing. Slide the #10-32 brass threaded rod (crankshaft) into the brass crankshaft tube.

3 Using needle-nosed pliers, bend the 1/16" brass rod (connecting rod) to shape. See *both* the Parts View and Propeller Shaft detail for reference.. Note that the bend on one end is 90° from that on the other end. Both ends need bending.

4 Working inside the crank opening, slip the crank onto the end of the connecting rod, then slide the crank onto the crankshaft where shown on the Section View drawing. Apply flux. Next, use a soldering gun to solder the crank onto the crankshaft (threaded brass rod) where shown on the Section View drawing, being careful not to solder the crank to the crankshaft tube.

5 Slide the top end of the connecting rod (attached to the crank in the previous step), into the hole in the pilot's scarf. Now, insert the pilot/scarf assembly into the hole in the cockpit.

6 Attach the propeller to the front end of the threaded rod. Adjust as necessary for smooth movement. Shorten the rod if needed. Remove the propeller assembly.

Finishing touches before takeoff

1 Epoxy a ½"-long piece of ¼" brass rod into the end of a 4"-long piece of 9/32" (I.D.) brass tubing (pivot tube) where shown on the Section View drawing. Now, epoxy the brass pivot tube into the hole in the bottom of the fuselage. Grind or file one end of a piece of ¼" brass rod 7" long (pivot pin) to the shape shown on the Section View drawing.

2 Finish-sand the wood parts. Mask the protruding ends of the brass tubing and threaded rod.

3 Apply a clear exterior finish to the propeller (we used spar varnish), and paint the propeller hub with an exterior enamel.

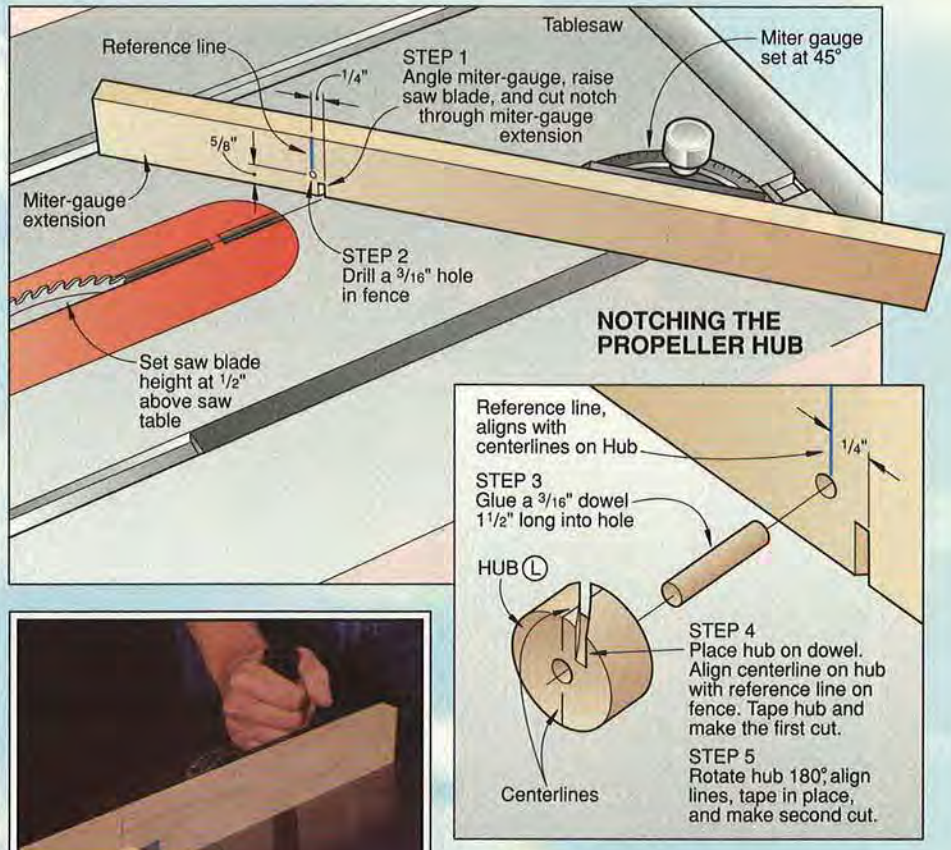
4 Apply two coats of aerosol primer to the plane. Follow up with two coats of red paint (we used Chinese red aerosol).

5 Detail-paint the pilot and scarf.

6 To make the emblem designs, either paint them onto the wings and fuselage, or transfer the patterns to colored tape. Apply the tape "decals" where shown on the opening photo.

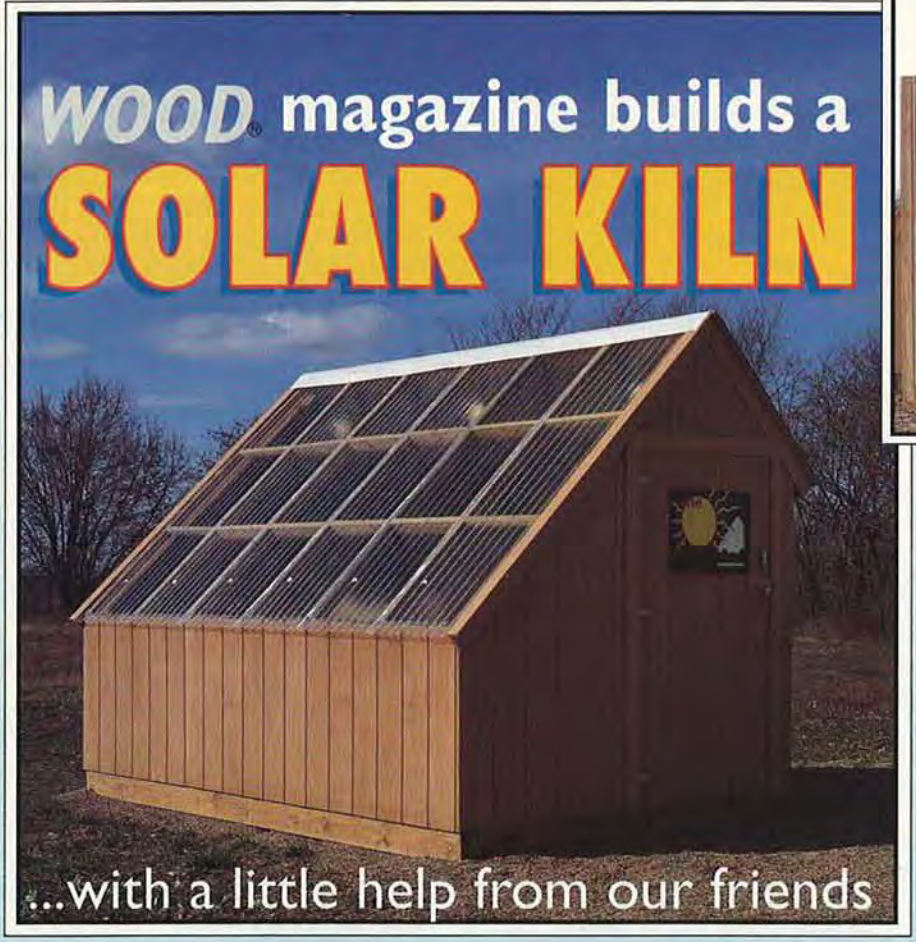
7 Drill a ¼" hole in the top end of a post, and insert the ¼×7" brass pivot pin into the hole. Slide the whirligig onto the pivot pin.

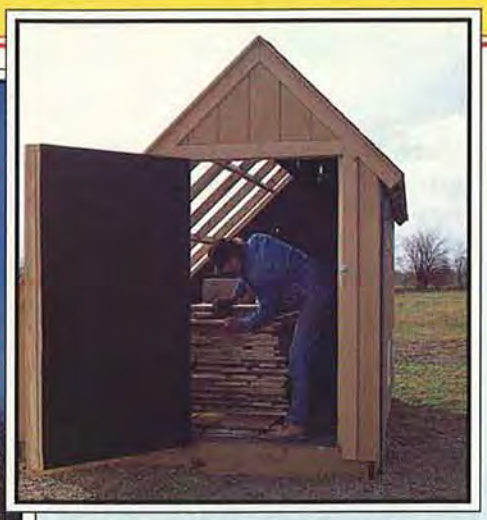
Written by Marlen Kemmet
Project Design: James R. Downing
Photographs: John Hetherington
Illustrations: Kim Downing


Tablesaw
Reference line
1/4"
STEP 1
Angle miter-gauge, raise saw blade, and cut notch through miter-gauge extension
Miter gauge set at 45°
5/8"
Miter-gauge extension
STEP 2
Drill a 3/16" hole in fence
NOTCHING THE PROPELLER HUB
Set saw blade height at 1/2" above saw table
Reference line, aligns with centerlines on Hub
1/4"
STEP 3
Glue a 3/16" dowel 1 1/2" long into hole
HUB (L)
STEP 4
Place hub on dowel. Align centerline on hub with reference line on fence. Tape hub and make the first cut.
STEP 5
Rotate hub 180°, align lines, tape in place, and make second cut.
Centerlines

Attach a wood extension to your miter gauge, and cut a pair of angled notches in the propeller hub.

WOOD® magazine builds a SOLAR KILN





Above: **According to the thermometer, it was 95° inside WOOD magazine's solar kiln one day last November when editor Pete Stephano checked moisture content. The kiln was newly built, and the air-dried wood had just been stacked. Note the overhead baffle that directs air flow delivered by the fans.**

Left: **The solar panel, made of clear, corrugated fiberglass panels, faces south at a 45° angle.**

In our December 1993 issue, we relayed the staff's experience with logging and sawing our very own pile of woodworking stock. And we promised you that we would follow up with a kiln design to dry that sawn-on-site stack of ash, cherry, and walnut.

Since then, we've consulted with experts, worked with a designer and a builder, and constructed the nifty 8×8×12' passive-solar building you see here. And boy does it work, not to mention save money! Better still, we developed a plan for our kiln so you can build one just like it.

Unless you live in a desert, you'll never air-dry green wood down to six to eight percent moisture content, the preferred dryness for stock destined to become furniture or other indoor projects. That's because the average outdoor relative humidity for most of the U.S. hovers at about 65 percent—equivalent to 12 percent moisture content in a board. But, indoor humidity runs a lot less, so projects for use there must be built from kiln-dried stock in the lower moisture-content range or you'll see lots of wood movement. (For outdoor projects, such as porch furniture, the appropriate wood with a higher moisture content is okay.)

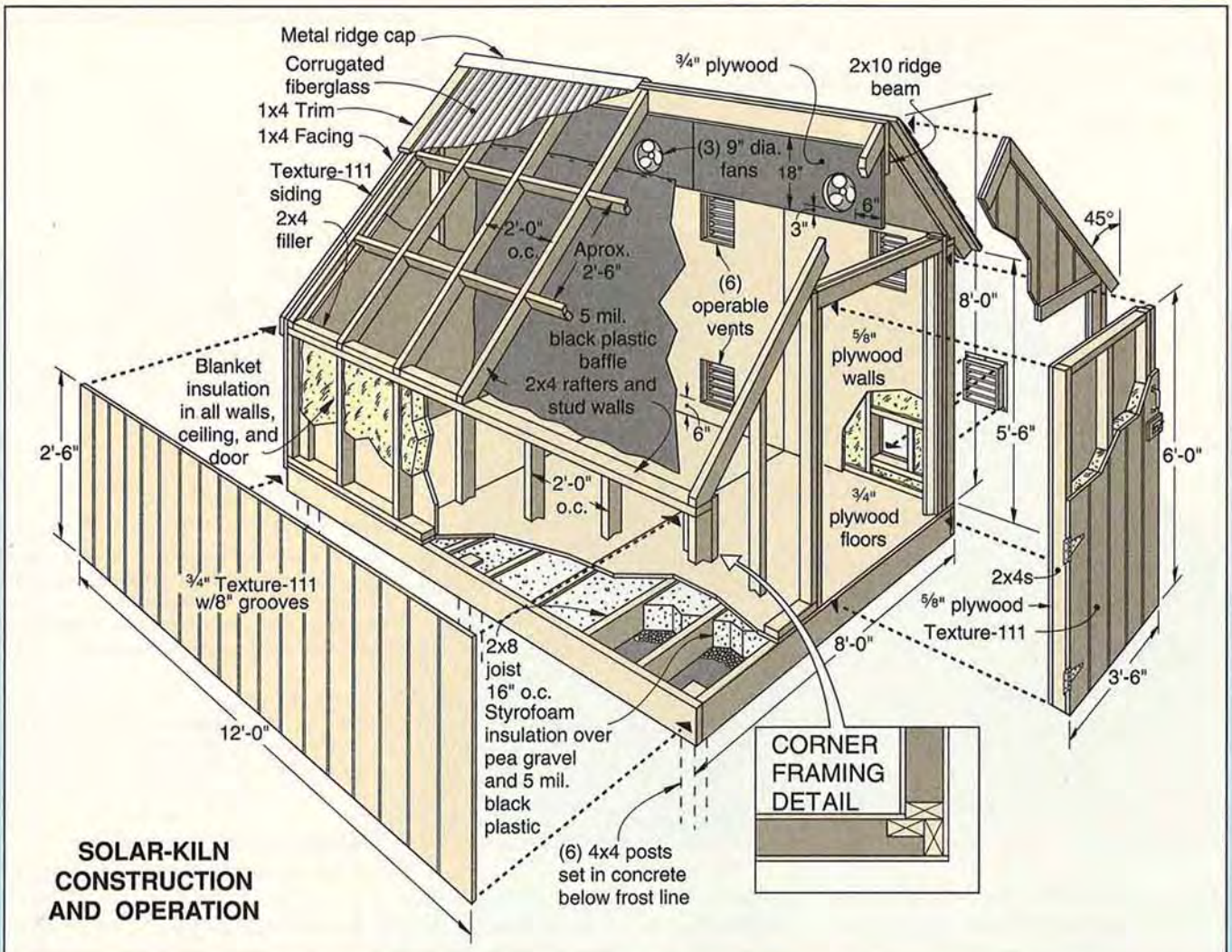
To most woodworkers, though, the technique of do-it-yourself kiln-drying is a mystery. Then there's the cost, and the maintenance involved. Who has the money or the time? That's how we thought, at first.

Dry wood in six weeks!

The lumber industry has kiln-drying down pat. Over the decades, they've learned how to tame even the most stubborn woods and turn them into useful stock. Heavy-duty commercial kilns rely on heat from a furnace or other fueled source. And they often introduce steam to relieve stress in the drying boards. It's all really pretty technical and complicated. Yet, we found that on the do-it-yourself level, it doesn't have to be that way.

In searching for answers, one source often leads to another. And that's how it was when we went looking for some kiln-drying know-how.

At the U. S. Forest Service's Forest Products Laboratory in Madison, Wisconsin, wood-drying expert Sid Boone was most helpful. Besides tips, he handed over rough drawings for two basic solar kilns. One seemed much too involved. The other, a design concept orginally created by University of Wisconsin-Extension forester Eugene Wengert in 1978, was a lot sim-



pler. We chose it as the basis for our kiln because, according to Wengert, the kiln dries fresh-sawn hardwood lumber down to six to eight percent moisture in about six weeks of mostly sunny, warm weather (half that time for most softwoods).

Wengert calls his concept a "semi-greenhouse, solar recirculation dryer." We just call it a passive-solar kiln, yet heeded his advice in building the structure shown on these pages. It cost just about $2,000 plus labor, but will practically pay for itself with the first load. (For example, take our staff-harvested and sawn 614 board feet of ash, cherry, and walnut. At a combined average retail price of $2.95 per board foot, our wood would have cost about $1,800.)

Kiln-construction guidelines

According to Wengert and his associate, Dan Meyer, in their guidelines for a solar kiln of this type, you determine the size of the kiln with the following rule of thumb: Consider the maximum capacity in board feet you want the kiln to hold to be roughly 10 times the solar panel roof area in square feet. We wanted our kiln, for instance, to dry 1,000 board feet per load (no sense drying more than you can use). So the solar panel had to contain 100 square feet. Our solar panel measures 8'6"×12' (102 square feet).

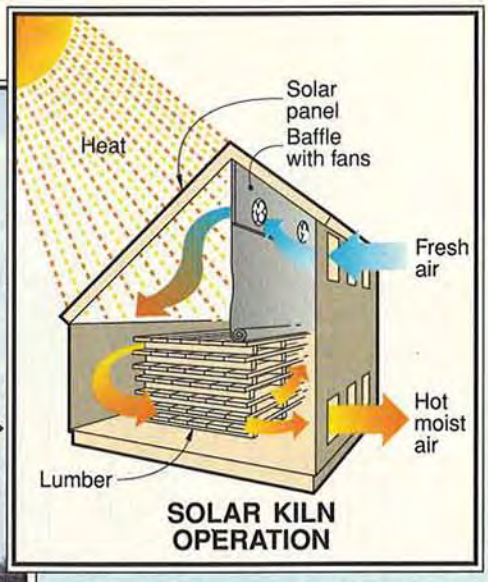
Here's another important guideline. For maximum year-round performance, the kiln's roof (the solar panel) angle should be equal to the latitude of where you live in degrees north of the equator.

In Iowa, with a latitude ranging from about 40°-45°, an angle of 45° works fine, and from a construction point of view, that angle was easier to contend with. In Austin, Texas, though, an angle of 30° will suffice. In North Dakota, a steeper angle, of say 50°, would perform better. There's more, too.

- Use pressure-treated (CCA) lumber for all framing.
- Select exterior-grade plywood for the interior as well as the exterior.
- Insulate the floor with non-water soluble, solid-foam (rigid) insulation. Use blanket-type insulation without a foil facing in the walls and door.
- Seal interior surfaces against moisture while allowing them to absorb the maximum amount of solar heat by applying a base-coat of aluminum- or oil-based paint to

Continued

SOLAR KILN



Above: **The drawing shows how the kiln works. The stickered green wood dries from the heated air forced down and through the pile by fans in the baffle. Some air exits, some recirculates.**

Left: **On the kiln's north side, vents provide for air entrance and exit. The extra-wide and insulated door allows easy stacking and removal of lumber.**

the walls and floor. Add a final coat of flat-black paint. (To trap even more solar heat, it wouldn't hurt to stain the exterior a dark color, too.)

- Kiln-ventilation fans should not contain plastic parts. Inside temperatures can reach 150° F.

To those guidelines we incorporated the following goals:

- Keep construction simple and as maintenance-free as possible.
- Since the kiln won't operate all the time, it should do double-duty as an attractive storage shed, or a greenhouse, or even a flower-and-fruit dryer.
- For cost-savings and minimum waste, the design uses standard-dimension sheet goods.
- Inside dimensions allow for boards 10' long as well as the stacking and removal of stock by one person. At least 12" of space on all sides of the stack provides for air flow.

Editor's note: The solar-kiln design we used has been built all over the world, in many ways. Our adaptation is admittedly more elaborate than actually needed. A simple version might just have plywood walls and floor and a solar panel made from clear plastic sheeting. It wouldn't be as permanent, but it would still work.

We have also discovered that winter drying is aided by installing clear plastic sheeting *inside* the solar panel to help retain heat.

For more informative tips on drying lumber, see page 80

Build Your Own Kiln

For complete plans and a materials' list for the 1,000-board-foot-capacity solar kiln shown in this article, send your check or money order for $9.95 ppd. (U.S.) to: *Kiln Plans, WOOD® magazine, 1912 Grand Ave., Des Moines, IA 50309-3379.*

Note: Solar-drying isn't the only way to get kiln-dried wood. For manufacturers of other types of drying kilns and kiln kits, see advertisers elsewhere in this issue.

Want to learn more about wood drying?

For a free list of available texts and handbooks covering lumber drying and kiln operation, send a stamped, self-addressed, business-sized envelope to: *Wood Drying, Dept. of Forestry, University of Wisconsin-Extension, 1630 Linden Dr., Madison, WI 53706.*

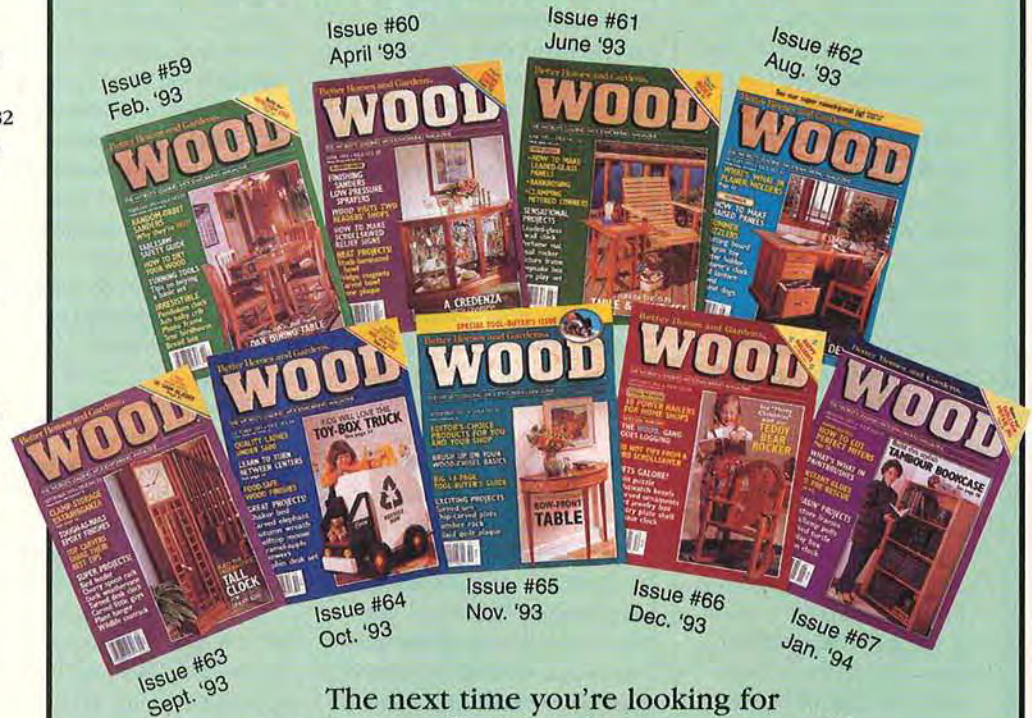
APA-rated sheathing/siding, American Plywood Assoc.; Pressure treated southern pine lumber, Southern Pine Marketing Council; Stain, Thompson & Formby, Inc.; University of Wisconsin-Extension.

Written by Peter J. Stephano Photographs: John Hetherington Design: David Ashe Illustrations: Carson Ode

Print this article

WOOD® INDEX

Cumulative index for issues 59-67



The next time you're looking for a project or feature story in issues 59 through 67, use this handy reference to help you find it fast. We kept it simple. For instance, when searching alphabetically for the story on butternut, you'll find "Butternut, **65**:16." To locate the story, go to issue 65, page 16. If you're looking for a like reference for issues 1 through 60, order our *WOOD* Cumulative Index. To do this, send $6.95 (price includes shipping and handling) and your name and address to:

WOOD Cumulative Index 1-60
P.O. Box 9255 WCI-60A
Des Moines, IA 50306

A-C

Acrylic paints, **59**:48-49
Air-filtering visor, **65**:36
Air-filtration cabinet, **60**:9
Air-hose reel, hanging, **64**:12
Air sanders, **59**:43
Ale bowl, carved, **60**:50-51, 82
Alignment aid for saw, **63**:80
Allen-wrench handle, **66**:10
Angles, figuring, **63**:78, 87; **67**:28-29
Ash, white, **64**:27-28
Autumn leaves, scrollsawed, **64**:70-71, 80
Avocado, **62**:88; **66**:7
Awl, sharpening, **62**:14
Axle pegs, shortening, **66**:15
Back fatigue, belt for, **65**:35
Balls, drilling holes in, **61**:10
Bandsaw mills, **66**:1, 56-61
Bandsaws, **65**:48-49
  blades:
    folding, **60**:85
    holder for, **60**:84
    retensioning, **60**:12
  boxes, **66**:25-29, 46-48
    dovetail jig for, **63**:8
  grooved tables on, **59**:6
  resawing with, **60**:42-43
  three- vs. two-wheel, **63**:89
Banksia-pod clock, **63**:30-31
Barkrosing, **61**:54-55
Barn play set, **61**:68-70
Barrelmakers' planes, **64**:90
Baseball bats, boning of, **59**:76
Bed, Shaker, **64**:60-65, 78
Belt sanders, **59**:72; **65**:58-59
  belts for, **60**:89
  leveling glue-ups with, **59**:57
Bench grinders, **59**:72
Bench-stop system, **63**:11
Bending of wood, **67**:78
Bevel cutting, **67**:28, 31-32, 33
  planer for, **66**:10
  on raised panels, **62**:38; **67**:7
  table for, **60**:46-47; **67**:31
Bevel gauge, small, **60**:22
Bezels, wristwatch, **66**:52-54
Bird feeder, **63**:46-49
Birdhouse, **59**:68-69
Bird-shaped bowl, **60**:50-51, 82
Bird-shaped magnets, **60**:68-69
Biscuit joinery, **61**:8; **65**:74
  gluing, **64**:10
  for small stock, **65**:41
Blind nailer, **62**:20
Boat models, maker of, **64**:29-33
Bookcase, tambour, **67**:48-53
Bow-front table, **65**:30-33
Bowls:
  ale, carved, **60**:50-51, 82
  epoxy-finished, **63**:62-63
  stack-laminated, **60**:46-49
Boxes:
  bandsaw, **66**:25-29, 46-48
  bread, wheat-motif, **59**:70-71
  display, **67**:64-65
  dolphin desk set, **64**:39-41
  with figured inlay, **61**:66-67
  hardware for, **66**:22
  suede, spray-on, for, **66**:76
Brad nailers, power, **66**:30-35
Bread box, **59**:70-71
Brushes, **59**:49; **67**:54-57
Build-A-Toy® contest, **64**:1, 66-67, 82-84
Butternut, **65**:16
Calculators, **65**:34
Caramel-apple skewers, **64**:58-59
Caricature Carvers of America (CCA), **63**:50-53
Carousel horses, **67**:23-27
  tree ornament, **66**:42-45
Carvers:
  Caricature Carvers of America (CCA), **63**:50-53
Carving, **63**:50-53
  acrylic paints for, **59**:48-49
  ale bowl, **60**:50-51, 82
  ash, white, **64**:28
  barkrosing, **61**:54-55
  carousel horses, **67**:23-27
  elephant, **64**:48-51, 76
  fish decoys, **60**:35-39; **63**:11
  hound dogs, **62**:58-61
  Little Guy, **63**:70-72
  oak, white, **60**:34

Continued

WOOD® INDEX

plate, chip-carved, 65:66-67
poplar, yellow, 67:22
tree ornaments, 66:42-45
tupelo, 62:26
turtle, 67:58-61
Cedar, western red, 62:96
Ceiling fan pulls, 67:44-45
Chairs:
dining, 60:72-78
outdoor, 61:48-53
rocking, teddy bear, 66:36-41
Chamfering jig, 63:18
Chests:
Shaker, 62:11
small, hardware for, 66:22
Chip-carved plate, 65:66-67
Chisels, 59:16, 63-64; 65:64-65
Christmas decorations:
carved ornaments, 66:42-45
plans for, ordering, 61:6
Chucks, keyless, 59:76
Circles, cutting, 65:6
Circular saw blades, 63:40-45
Circular saws, portable, 65:50-51
base for, 63:14
guides for, 62:84; 64:10
Clamps:
balls held with, 61:10
bar, one-hand, 65:38-39
C-clamp, quick-release, 65:40
holders for, 63:58-61
for miters, 61:47; 67:15, 32-33
plastic coating for, 61:13
for plywood storage, 63:18
rack of, 64:25
spreader, 61:76
strap, 60:19; 67:33
Clocks:
banksia-pod, 63:30-31
dinosaur clock, 66:64-65
pendulum, 59:30-33; 63:32-38
wall-mounted, 61:39-42
scrollsaw, 66:64-65; 67:66-67
seafarer's, 62:32-33
Shaker, tall, 63:32-38
Coatracks, wildlife, 63:54-57
Cocobolo, finishing, 60:31
Collectible tools:
collector of, 63:25-29, 74
planes, 59:20; 63:26-29, 82
for barrelmaking, 64:90
screwdrivers, spiral, 62:90
Computer-aided drafting (CAD) programs, 62:7; 63:86
Contests:
Build-A-Toy®, 64:1, 66-67, 82-84
Cope-and-stick frames, 62:38-39
Coping saws, 60:88
Cove moldings, cutting, 63:13
Credenza, 60:58-64; 67:6
Crib, 59:34-39; 61:8
Crozes and howels, 64:90
Cutoffs, holder for, 66:16
Cutting boards, 62:52-53; 66:96
Cyanoacrylate (CA; instant) glue, 67:32, 62-63

D-E

Dado-cutting tools, 65:46-47
use of, 59:74
Dado routing, 66:14
Dado shims, 64:89
Decoys, 60:8
fish, 60:35-39; 63:11
Desk, oak-paneled, 62:42-47
Desk set, dolphin, 64:39-41
Dining chairs, oak, 60:72-78
Dining table, oak, 59:50-56
Discs, sanding, 59:45
Disc sanders, benchtop, 59:72
Display box, 67:64-65
Dogs, carved, 62:58-61
Dolly for sheet goods, 59:8
Door plaque, 60:70-71; 64:6
Dowel sanding, 67:10
Dowel storage, 59:14
Dragon toy, 62:54-55
Drawers, stops for, 60:21
Drill bits:
needles as, 60:16
spade, depth gauge for, 60:14
titanium-coated, 59:17
Drill guide, pocket-hole, 65:76
Drill presses:
balls, making holes in, 61:10
base for, 64:10
benchtop, 59:72
dowel as drum sander in, 59:9
dust collector for, 59:22
Drills:
first hand-held power, 61:88
right-angle attachment, 61:80
Drum sanders:
dowel as, 59:9
flush-sanding, 64:86
Drying of wood, 59:40-41; 66:19
kiln-drying, 59:74
Duck decoration, 63:66-67
Dulcimers, parts for, 64:20
Dust collectors and dust control, 59:7; 65:52-53
air-filtering visor, 65:36
air-filtration cabinet, 60:9
blast gates for, 60:10
connectors, 66:7
for drill press, 59:22
drop box for, 64:16
furnace fans for, 63:10
grounding, 62:6; 65:19
hook for vacuum hose, 65:12
kit for, 65:38
liquid for containment, 59:18
masks, paper, 67:12
for sanders, 59:45-46; 60:55
for scrollsaws, 59:10, 12
Ebony, gluing, 66:20
Edge-joining:
clamp rack for, 64:25
leveling of glue-ups, 59:57
Electric outlets, coded, 64:13
Elephant, carved, 64:48-51, 76
End-grain joinery, 60:21
Environmental concerns, 61:88
Epoxy finishes, 63:62-63

F-G

Faceplates for turning, 66:83
Fan pull, turned, 67:44-45
Fasteners:
copper nails, 64:8
Double T, 64:87
screws, 60:21; 64:68-69; 65:6
Fastening tools, 66:30-35
Feather pin, 60:8
Finishes:
acrylic paints, 59:48-49
brushes for, 59:49; 67:54-57
can holder, 65:8
for cocobolo, 60:31
epoxy, 63:62-63
food-safe, 64:74
friction-film, 59:58-59
linseed-turpentine-varnish (LTV), 59:8
outdoor, 62:78
for picture frames, 67:12
polyurethane, 62:84
for redwood, 63:96
removers, 65:74
Finishing sanders, 60:52-57
Fireplace plaque, 59:28-29
Fish decoys, 60:35-39; 63:11
Flocking, spray-on, 66:76
Flush-sanding drum, 64:86
Frame-and-panel construction, 62:36-41; 67:7
desk with, 62:42-47
French polish, modern, 59:58-59
Furniture:
bed, Shaker, 64:60-65, 78
chairs:
dining, 60:72-78
outdoor, 61:48-53
teddy bear rocker, 66:36-41
credenza, 60:58-64; 67:6
crib, 59:34-39; 61:8
desk, oak-paneled, 62:42-47
drawers, stops for, 60:21
tables:
bow-front, 65:30-33
dining, 59:50-56
outdoor, 61:48, 52-53
tall chest, Shaker, 62:11
training programs, 64:24
willow, 61:23-27
Glass panels, leaded, 61:32-38
clock with, 61:39-42
Glue:
aliphatic resin, 62:20
in biscuit slot, 64:10
cyanoacrylate, 67:32, 62-63
shelf life, 67:76
squeeze-out, dealing with, 65:36-37, 65; 66:55
Gouges, turning, 59:63
Grenadier nutcracker, 66:72-75
Grinders, 59:72
sanding head for, 59:46

H-I

Hardware carrier, 61:16
Heron clock, 67:66-67
Horses, carousel, 67:23-27
tree ornament, 66:42-45
HVLP sprayers, 60:79-81
IDEA SHOP™, 59:7
budget version of, 60:29
Intarsia coatracks, 63:54-57

J-M

Japan, wood in, 67:18
Jewelry boxes, 66:22, 46-48
Jigs:
axle-shortening, 66:15
chamfering, 63:18
dovetail, 63:8
fence-setting, 63:17
for high workpieces, 62:34-35
miter, 67:16, 30, 34-39

pocket screw-hole, 65:76
resawing, bandsaw, 60:42, 43
sliding table, 60:46-47; 67:31
spline-cutting, 59:55
for threaded inserts, 59:12
Jigsaws, 65:54-55
Jointers:
knives:
hone for, 61:78; 65:16
offsetting nicks in, 62:12
pushstick for, 62:22; 66:7
router table as, 61:20
tables, aligning, 60:14
Joints and joinery.
biscuit, 61:8; 64:10; 65:74
for small stock, 65:41
cope-and-stick, 62:38-39
dovetail, jig for, 63:8
end-grain, 60:21
screw, 64:68-69
Kauri, 63:91
Kiln-dried wood, 59:74
Laminated bowl, 60:46-49
Lantern, outdoor, 62:69-73
Laser, mitersaw with, 65:37
Laser cutting, 60:31
Lathes, 64:42-47; 65:75
work on. **See** Turning
Leaded-glass panels, 61:32-38
clock with, 61:39-42
leaves wreath, 64:70-71, 80
Letter holders:
dolphin, 64:39-41
stamp-shaped, 62:56-57
Lettering guides, 64:88
Lighting, outdoor, 62:69-73
Lights, signal, for shop, 64:14
Linseed-turpentine-varnish (LTV) finish, 59:8
Little Guy, carved, 63:70-72
Log drying, 66:19
Logging, 66:1, 56-61
Lumber:
drying of, 59:40-41, 74
geographic origins, 61:62-63
ink marks on, removing, 64:22
metric conversions for, 62:19
milling of, 66:1, 56-61
moisture of, 59:40-41; 66:20
sticker of, defined, 64:22
storage rack for, 65:42-45
unwinding, 63:27-28
Mahogany, 67:7
Masks, paper, 67:12
Mat cutter, 64:88
Metric conversions, wood, 62:19
Mission-style furniture:
chairs, dining, 60:72-78
table, dining, 59:50-56
Miter gauge, tightening, 62:14
Miters, 67:28-33
clamps and clamping, 61:47; 67:15, 32-33
jig for, 67:1, 30, 34-39
shooting board for, 63:82
Mitersaws, 65:37, 40-41, 56-57
cabinet for, 59:7
procedure with, 65:21
Mobile tool bases, 60:65-66; 63:10; 64:10
replacement wheels for, 60:10
Moisture content of wood, 59:40-41; 66:20
Molder/planers, 62:62-68
Moldings:
cove, cutting, 63:13
mitered, 61:47; 67:30-31
Moose, shelftop, 64:72-73
Motors:
flexible-shaft tool's, 61:13
horsepower ratings, 67:76
Multipurpose machines, 62:62-68
Musical-instrument parts, 64:20

N-P

Nailers and staplers, 66:30-35
Nail holes, hiding, 62:20
Nails, copper, 64:8
Norwegian folk craft, 67:46-47
Nutcrackers, 65:27-29; 66:72-75
Oak:
bur, 60:90
white, 60:33-34; 64:7
Orbital sanders, 60:52-57
Ornaments, carved, 66:42-45
Outdoor projects:
finish for, 62:78
lantern, wall, 62:69-73
table and chair, 61:48-53
Paintbrushes, 59:49; 67:54-57
Paints, acrylic, 59:48-49
Panels, raised, 62:36-41; 67:7
desk with, 62:42-47
Parting tools, 59:64
Patterns, grid film for, 65:39
Perfume vial, 61:28-29
Picture frames, 59:66-67; 61:64-65; 67:40-43
Pine, California, 66:8
Planers:
bevels made with, 66:10
knives:
hone for, 61:78; 65:16
offsetting nicks in, 62:12
planer/molders, 62:62-68
sniping, prevention of, 59:74; 63:13
Planes, antique, 59:20; 63:26-29, 82; 64:90
Plant hanger, 63:64-65
Plaques:
door, 60:70-71; 64:6
wall, 59:25-29; 65:68-70
Plate, chip-carved, 65:66-67
64:10; 65:41, 74
Plate rack, 66:49-51
Plugs, screw, 63:39; 67:6
Plywood:
dolly for, 59:8
sawing, 62:84; 63:14; 64:10
storing, 63:18; 64:12
substitutes for, 66:22
work support, 63:23
Poplar, yellow, 67:21-22
Porpoise desk set, 64:39-41
Potato masher, turned, 64:57
Pulls, turned, 67:44-45
Purpleheart, 64:91
Pushblock for thin stock, 59:61
Pushstick, jointer, 62:22; 66:7
Puzzle, train, 66:62-63

Q-S

Quassia, 60:9; 65:19
Quilt wall hanging, 65:68-70
Radial-arm saws, 60:30; 64:7
cutting coves on, 63:13
procedure with, 65:21
Raised panels, 62:36-41; 67:7
desk with, 62:42-47
Random-orbit sanders, 59:42-47
Rasps, 67:71
Redwood, 63:96
signs from, 62:27-31
Refrigerator magnets, 60:68-69
Relief signs, scrollsawed, 60:40-45, 70-71; 64:6
Resawing jig, 60:42, 43
Rings, wooden, making, 63:86
Rocker, teddy bear, 66:36-41
Rocking snail, 61:58-61; 64:7
Routers:
bits:
for biscuit joinery, 65:41
changing, 65:14
raising panels with, 62:39
titanium-coated, 59:17
dadoes made with, 66:14
drawing accessory for, 66:80
fences, guides, 59:10; 62:84; 64:10; 65:23
hold-down for, 60:12
as jointer, 61:20
mat, 64:17
tables, 59:6; 60:9
tenons made with, 61:19
Rust prevention, 66:84
Rust removal, 63:74; 67:6, 9
Safety:
with glass, 64:6
masks, paper, 67:12
during rust removal, 67:9
with saws, 59:60-61; 60:30
with toxic wood, 67:68
Sanders and sanding, 65:74–75
belt, 65:58-59
belts for, 60:89
glue-ups leveled with, 59:57
belt/disc, benchtop, 59:72
of dowels, 67:10
drum:
dowel as, 59:9
flush-sanding, 64:86
finishing, 60:52-57
on lathe, 59:58-59
random-orbit, 59:42-47
Sandpaper, 60:89
blocks, fastening to, 61:10; 67:9
cleaner for, 59:18
cloth-backed, 62:83
grit, identifying, 67:10
museum of, 63:96
for random-orbit sanders, 59:45
spray adhesive on, 66:12
Santas, carved, 66:42-45
Sawhorse, cushioning for, 66:12
Sawmills, portable, 66:1, 56-61
Tablesaws:
alignment system for, 63:80
blades, 10", 63:40-45; 65:75
coping, 60:88
dado-cutting tools for, 59:74; 65:46-47
jigsaws, 65:54-55
rack for, 62:8
stop for, 64:85
Schools, woodworking, 64:24
Scrapers, 59:64
Screwdrivers:

Continued

WOOD® INDEX

with carbide grits, 60:86
spiral, 62:90
Screw holes, pocket, guide for, 65:76
Screw plugs, 63:39; 67:6
Screws, 64:68-69
in end grain, 60:21
flathead, 65:6
Scrollsaws, 59:72; 66:66-71
autumn leaves, 64:70-71, 80
clamp-screw heads, 67:10
clocks, 66:64-65; 67:66-67
dust blower, aiming, 59:10
dust collector for, 59:12
inside cuts, 65:6
letter holder, 62:56-57
plant hanger, 63:64-65
printed pictures, patterns from, 61:56-57
refrigerator magnets, 60:68- 69
rigid-arm, 65:80
signs, 60:40-45, 70-71; 64:6
lettering guides for, 64:88
wall plaques, 59:25-29
Shaker furniture:
bed, 64:60-65, 78
tall chest, 62:11
Sheet goods. **See** Plywood
Shelves:
bookcase, tambour, 67:48-53
plate rack, 66:49-51
standards, installing, 65:8
Shooting board and plane, 63:82
Shop skills:
bandsaw blade, folding, 60:85
chisels, 65:64-65
glue squeeze-out, 66:55
leveling glue-ups, 59:57
mitered moldings, 61:47
screw plugs, 63:39
Shop-tested techniques:
leaded-glass panels, 61:32-38
miters, 67:28-33
raised panels and frames, 62:36-41
scrollsawing, 66:66-71
signs, relief, 60:40-45
turning between centers, 64:52-57
Signmakers, 62:27-31
Signs, scrollsawed, relief, 60:40-45, 70-71; 64:6
lettering guides, 64:88
Skew chisels, 59:63-64
Skewers, caramel-apple, 64:58-59
Snail rocker, 61:58-61; 64:7
Sniping, prevention of, 59:74; 63:13
Spade bits, depth gauge for, 60:14
Splines:
jig for cutting, 59:55
miter joints with, 67:31-32
Spoon rack, 63:68-69
Spray-can straw, holding, 61:10
Sprayers, HVLP, 60:79-81
Stack-laminated bowl, 60:46-49
Stamp letter holder, 62:56-57
Staplers and nailers, 66:30-35
Stencil lettering guides, 64:88
Stickering of wood, 59:40-41; 65:78
Storage:
bandsaw blades, 60:84
clamps, 63:58-61
cutoffs, 66:16
dowel rods, 59:14
hardware carrier, 61:16
lumber rack, 65:42-45
plywood, 63:18; 64:12
saw rack, 62:8
tool manuals, 63:20
Strop, power, 67:72
Strychnine tree, 65:24
Suede, spray-on, 66:76

T-V

Tables:
bow-front, 65:30-33
dining, oak, 59:50-56
outdoor, 61:48, 52-53
Tablesaws:
angle cuts, scale for, 63:78
benchtop, 59:72
blade, immobilizing, 60:10
chamfering jig, 63:18
fence-setting jig, 63:17
guide strips, 62:12
high-workpiece jig, 62:34-35
miter-gauge fit, 62:14
miter jigs, 67:16, 30, 34-39
outfeed roller, 63:14
safety with, 59:60-61
sliding tables, 60:46-47; 67:31
Tambour bookcase, 67:48-53
Teddy bear rocker, 66:36-41
Telephone, signal for, 64:14
Tenons:
chisel use for, 65:64-65
round, 61:19; 65:10
Thin-kerf saw blades, 63:42
Thin-stock ripping, 59:61
Threaded inserts jig, 59:12
Tissue box cover-up, 65:19
Tool rests for lathes, 64:43-44
Tools:
awl, sharpening, 62:14
basic kit, 63:76-77
bevel gauge, small, 60:22
blind nailer, 62:20
carving, 63:50-52
chisels, 59:63-64; 65:64-65
crank-neck, 59:16
coping saw, 60:88
rasps, 67:71
rust prevention, 66:84
rust removal, 63:74; 67:6, 9
screwdrivers, 60:86; 62:90
testing, 61:1, 30-31
turning, 59:62-65
Toxic wood, 67:68
Toy-box truck, 64:34-38
Toys:
axles, shortening, 66:15
barn, 61:68-70
contest, 64:1, 66-67, 82-84
dragon, 62:54-55
snail rocker, 61:58-61; 64:7
train puzzle, 66:62-63
wheels for, 64:86
Train puzzle, toy, 66:62-63
Tree ornaments, 66:42-45
Truck, toy-box, 64:34-38
Tupelo, 62:25-26
Turners:
Hurt, Rus, tips by, 64:52-57
Kenny, Sandra and Neil, 65:88
Lory, David, 63:62-63
Marino, Sal, 59:58-59
Sing, Dick, design, 67:44-45
Turning:
ash, white, 64:28
between centers, 64:52-57
clocks:
banksia-pod, 63:30-31
columns for, 59:32
seafarer's, 62:32-33
faceplates, 66:83
finishes, 59:58-59; 63:62-63
lathes, 64:42-47; 65:75
oak, white, 60:34
perfume vial, 61:28-29
poplar, yellow, 67:22
pulls, 67:44-45
skewers for apples, 64:58-59
stacked bowl, 60:46-49
tupelo, 62:26
tools, 59:62-65
urn, 65:60-63
wristwatch bezels, 66:52-54
Turtle, carved, 67:58-61
Urn, turned, 65:60-63
Vacuums, shop:
dust-collection kit, 65:38
grounding of pipe for, 62:6
hooking in position, 65:12
Veneering, 60:26
Vise, holding balls with, 61:10

W-Z

Wall plaques:
quilt pattern, 65:68-70
scrollsawed, 59:25-29
Walnut trees, 67:88
Warped wood, problem of, 65:78
Watches, bezels for, 66:52-54
Wheels:
on tools, replacing, 60:10
toy, 64:86
Willow furniture, 61:23-27
Wood species:
ash, white, 64:27-28
avocado, 62:88; 66:7
butternut, 65:16
cocobolo, 60:31
ebony, 66:20
origins, North American, 61:62-63
kauri, 63:91
lesser-known (LKS), 61:88
mahogany, 67:7
medical uses, possible, 61:88
oak, bur, 60:90
oak, white, 60:33-34; 64:7
pine, 66:8
poplar, yellow, 67:21-22
purpleheart, 64:91
quassia, 60:9; 65:19
strychnine, 65:24
tupelo, 62:25-26
walnut, 67:88
Workshops, 60:65-67; 64:8.
carving cubicle, 63:53
light signals for, 64:14
Work supports, fold-out, 63:23
Wreath, autumn, 64:70-71, 80

AN ADVENTURE JUST WAITING TO HAPPEN

THE FUN-TIME RACER

Have you ever stumbled onto a woodworking project whose looks and styling stopped you cold? Well, that's what happened to *WOOD*® magazine design editor Jim Downing and me not long ago. We were passing by a local antique store, and there it was—the neatest old kid's wagon in creation. We looked at each other and decided right then that we wanted to design a version of it just for you.

We were careful to retain its classic lines, and to make sure this beauty will stand up to lots of outdoor use. We built the deck and box out of white oak and the wheels from exterior birch plywood. To find the hardware for the wagon, buy the parts at a local hardware store, or use our handy Buying Guide kit. We tell you how to machine these parts to fit.

A WOOD MAGAZINE F·A·M·I·L·Y HEIRLOOM PROJECT

Marlen Kemmet

Marlen Kemmet
How-To Editor

Continued

FUN-TIME RACER

Print this article

Note: *To receive full-sized patterns, send $3 and a 10×13" self-addressed envelope with $1.25 postage to Fun-Time Racer, WOOD Magazine, 1912 Grand Ave., Des Moines, IA 50309-3379. You'll need thin stock for this project. You can resaw or plane thicker stock, or see the Buying Guide with the Bill of Materials for our source of white oak and exterior birch plywood. Also listed is a supplier for all the hardware and strap iron needed.*

Let's start with the deck

1 From white oak (one of the heaviest and strongest of all the oaks), cut the deck boards (A) and the cleats (B) to the sizes listed in the Bill of Materials. (We planed ½" stock to ⅜" for the deck boards.) Sand a slight round-over on all edges to avoid splintering.

2 Dry-clamp (no glue) the deck boards edge-to-edge, with the ends flush. Lay out and clamp the cleats to the deck bottom. Turn the assembly over, and mark the four screw-hole centerlines across the surface of the clamped-together deck boards. See the Exploded View for reference.

3 Position and clamp the cleats (B) on the deck assembly. Drill countersunk screw holes through the deck boards 1" from the edges and ¼" into the cleats. Use #6×⅝" screws to secure the cleats to the deck boards. Remove the clamps.

Construct the rear axle assembly next

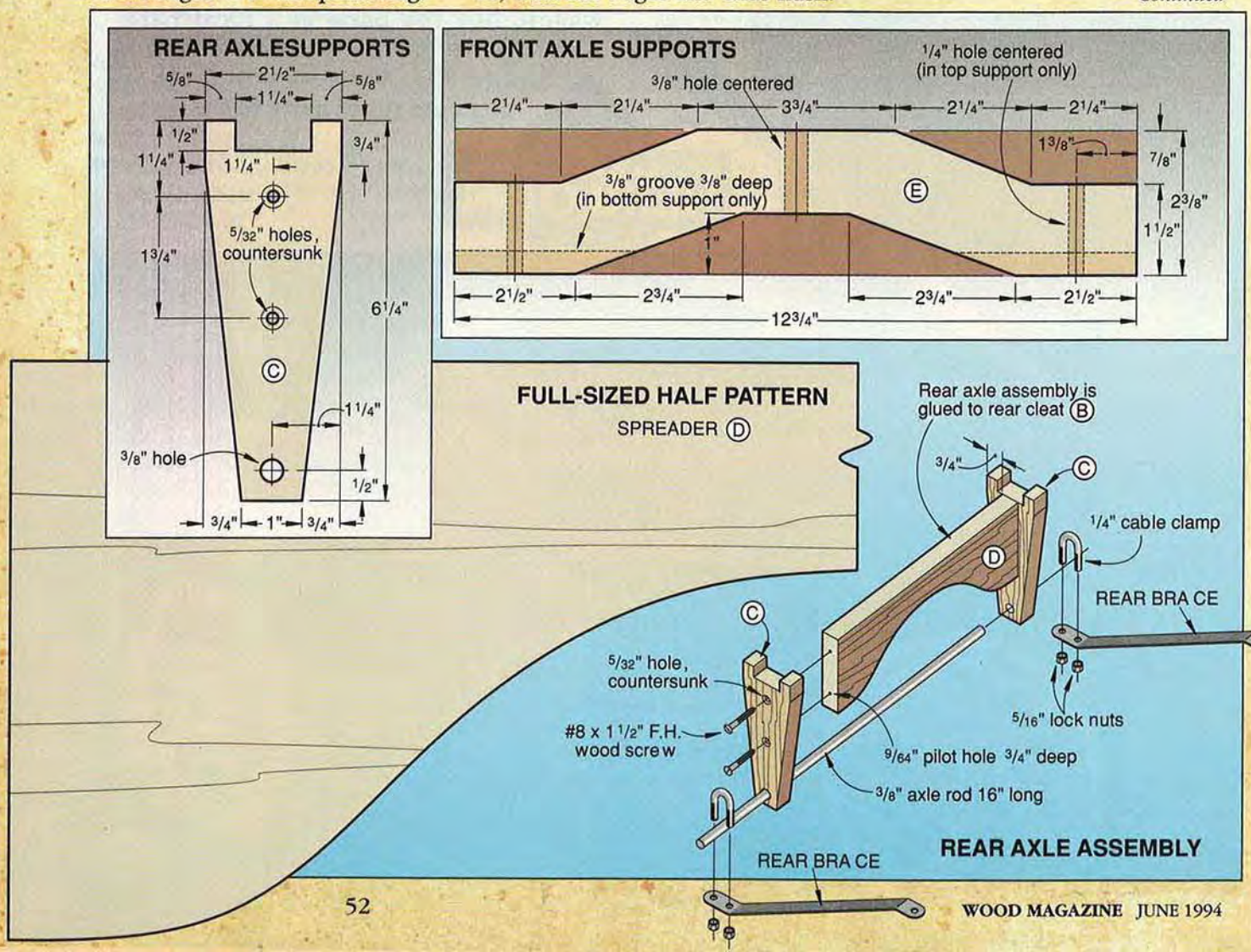
1 From ¾" white oak, cut two pieces to 2½×6¼" for the rear axle supports (C). Using double-faced tape, stick the two pieces together, with the edges and ends flush. Using the dimensions on the Rear Axle Supports drawing *below*, lay out the shape, notch, and hole centerpoints on the top piece.

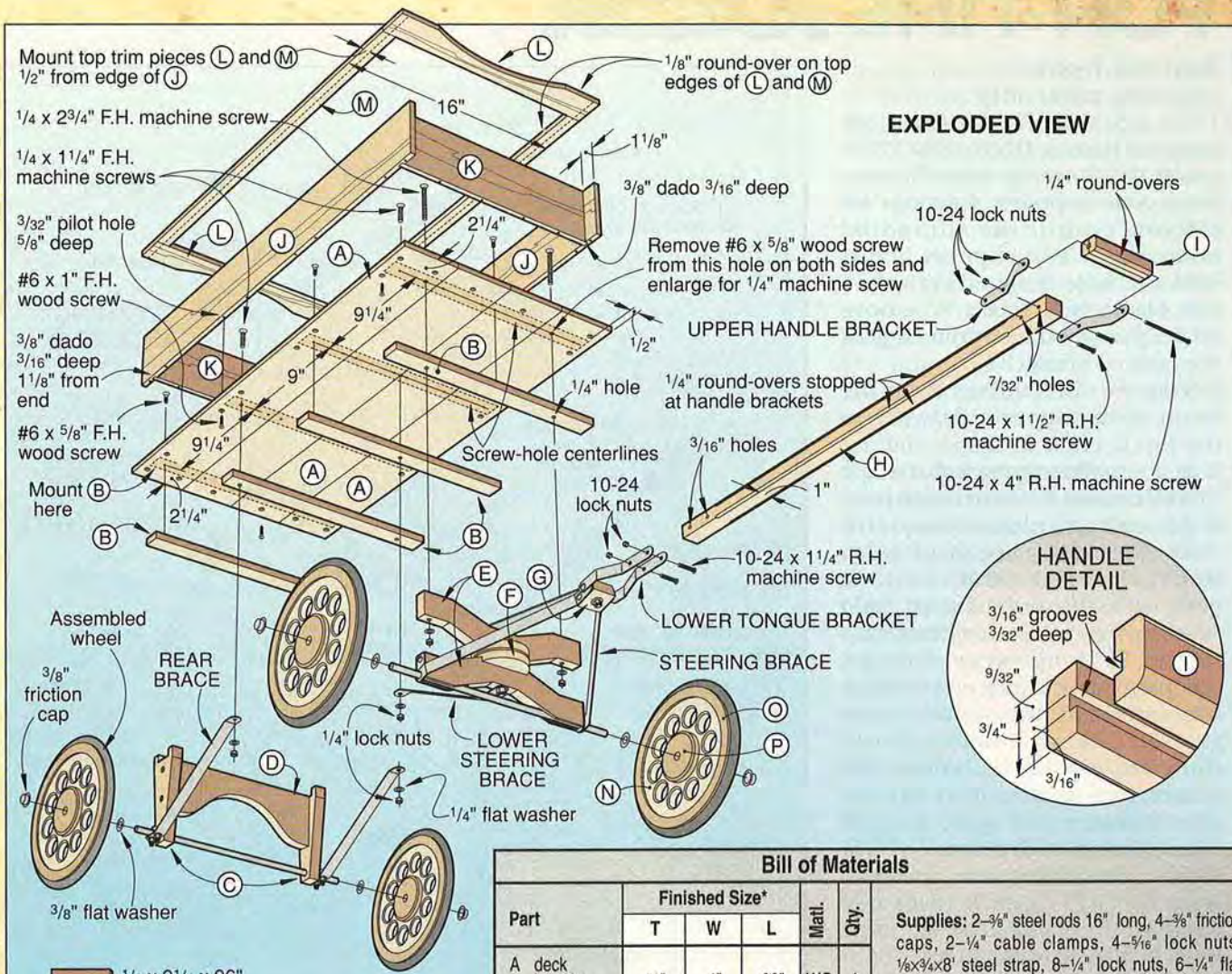
2 Drill the countersunk screw and axle holes through the taped-together pieces. Bandsaw the pieces to shape. Check the fit of the notch against the rear cleat on the wagon deck, and trim if necessary. Separate the parts, remove the tape, and sand smooth.

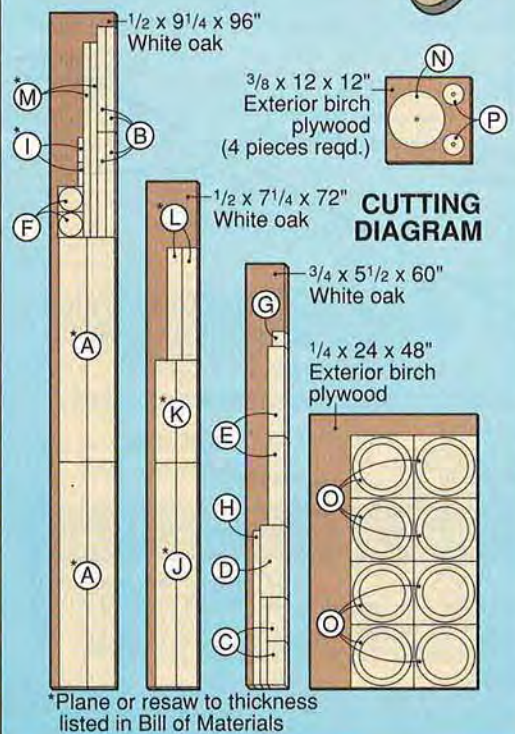
3 Cut a piece of ¾" stock to 3½×10¼" for the spreader (D). Transfer the full-sized half pattern twice to the spreader blank, and cut it to shape.

4 Glue and screw the rear axle assembly (C, D) together where shown on the Rear Axle Assembly drawing. (We inserted the axle rod in the holes in C to keep the pieces aligned when assembling.)

Continued






1/2 x 9 1/4 x 96" White oak
3/8 x 12 x 12" Exterior birch plywood (4 pieces reqd.)
1/2 x 7 1/4 x 72" White oak
CUTTING DIAGRAM
3/4 x 5 1/2 x 60" White oak
1/4 x 24 x 48" Exterior birch plywood
*Plane or resaw to thickness listed in Bill of Materials

Bill of Materials

Part	Finished Size* T	W	L	Matl.	Qty.
A deck boards	3/8"	4"	32"	WO	4
B cleats	1/2"	1 1/4"	15"	WO	4
C rear axle supports	3/4"	2 1/2"	6 1/4"	WO	2
D spreader	3/4"	3 1/2"	10 1/4"	WO	1
E front	3/4"	2 3/8"	12 3/4"	WO	2
F* universal joint discs	1/2"	3 1/2"-dia.		WO	2
G yoke	3/4"	1 3/4"	2 1/8"	WO	1
H tongue	3/4"	1"	22"	WO	1
I* handle	3/4"	3/4"	3 1/2"	LW	1
J sides	3/8"	3"	32"	WO	2
K ends	3/8"	3"	14 5/8"	WO	2
L top ends	3/8"	2 1/8"	16"	WO	2
M top sides	3/8"	7/8"	27 3/4"	WO	2
N* wheels	3/8"	8"-dia.		EP	4
O* rims	1/4"	8 3/8"-dia.		EP	8
P hubs	3/8"	3"-dia.		EP	8

*Initially cut parts marked with an * oversized. Trim to finished size according to the instructions

Materials Key: WO–white oak, LW–laminated white oak, EP–exterior birch plywood.

Supplies: 2–3/8" steel rods 16" long, 4–3/8" friction caps, 2–1/4" cable clamps, 4–5/16" lock nuts, 1/8×3/4×8' steel strap, 8–1/4" lock nuts, 6–1/4" flat washers, 5–3/8" flat washers, 4–10-24×1 1/2" R.H. machine screws, 1–10-24×4" R.H. machine screw, 5–10-24 lock nuts, 1–1/4×3" R.H. machine screw, 1–1/4×2 3/4" R.H. machine screw, 1–1/4×1 1/4" carriage bolt, 18–#6×1" F.H. wood screws, 1–3/8×4 1/2" hexhead bolt, 1–3/8" lock nut, 28–#6×5/8" F.H. wood screws, 2–1/4×2 3/4" F.H. machine screws, 3–1/4×1 1/4" F.H. machine screws, 1–1/4×3" R.H. machine screws, 4–3/8×1" I.D. bronze sleeve bushings, 2–#8×3/4" F.H. wood screws, 4–#8×2" F.H. wood screws, 10'–5/8" O.D. hose, 12"–3/8" O.D. hose, 3/16" dowel, clear exterior finish.

Buying Guide

Wagon hardware kit. All the parts stated in the Supplies listing *except* for the dowel stock and finish. Kit no. WM-HW, $49.95 ppd. Miller Hardware 1300 M. L. King Parkway, Des Moines, IA 50314. Or call 515/283-1724 to order. No CODs please.

Wagon lumber kit. All the individual oak and plywood pieces shown in the Cutting Diagram cut slightly oversized (length and width) from the thickness stated in the Bill of Materials. Stock no. W70, $99.95 ppd. Heritage Building Specialties, 205 North Cascade, Fergus Falls, MN 56537. Call 800-524-4184 to order.

Self-adhesive vinyl decals. Two WOOD Racer decals with stripes. $17.95 ppd. Kness Signs, 5291 NW 72 Street, Johnston, IA 50131. No phone orders please.

FUN-TIME RACER

Add the front steering assembly

1 Cut a pair of ¾"-thick front axle support blanks (E) to 2⅜×12¾". Using the Steering Assembly and Front Axle Supports drawings for reference, drill the ¼" and ⅜" holes in the top support blank. Drill a ⅜" hole centered in the bottom blank. Next, cut a ⅜" groove ⅜" deep along the bottom edge of the bottom blank (E).

2 Transfer the cutlines from the Front Axle Supports drawing to the top E, cut it to shape, and use it as a template to mark the shape on the bottom E. Cut it to shape.

3 To make the universal-joint discs (F), cut a piece of ½" stock to 4×12". Mount a dado blade to your tablesaw, and cut a ¾" dado ¼" deep centered along one face of the 12"-long piece. Using a compass, mark a pair of 3½"-diameter circles on the surface opposite the dado and centered over the dado. Drill a ⅜" hole at the centerpoint used to mark the circles. Bandsaw and sand the universal-joint discs to shape.

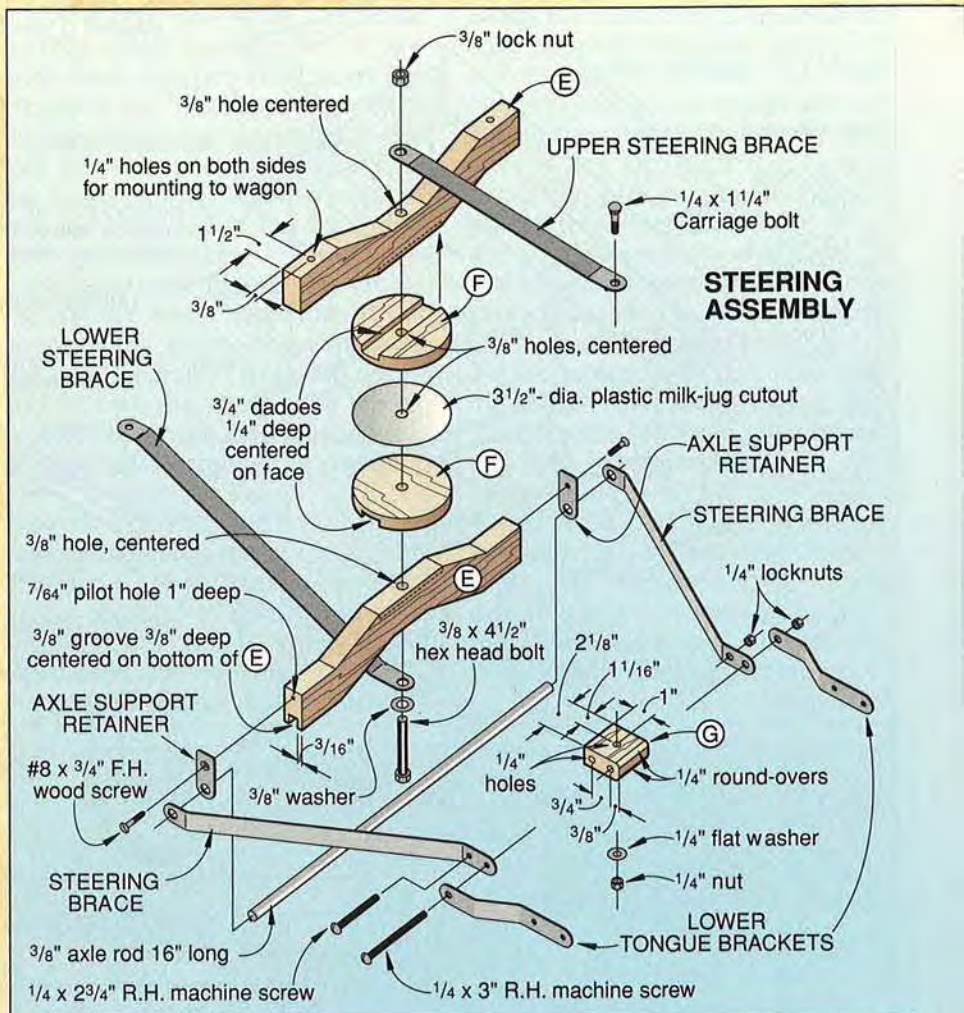
4 Glue and clamp one universal joint disc (F) to each front-axle support (E), using a ⅜×4½" hex-head bolt to align the holes.

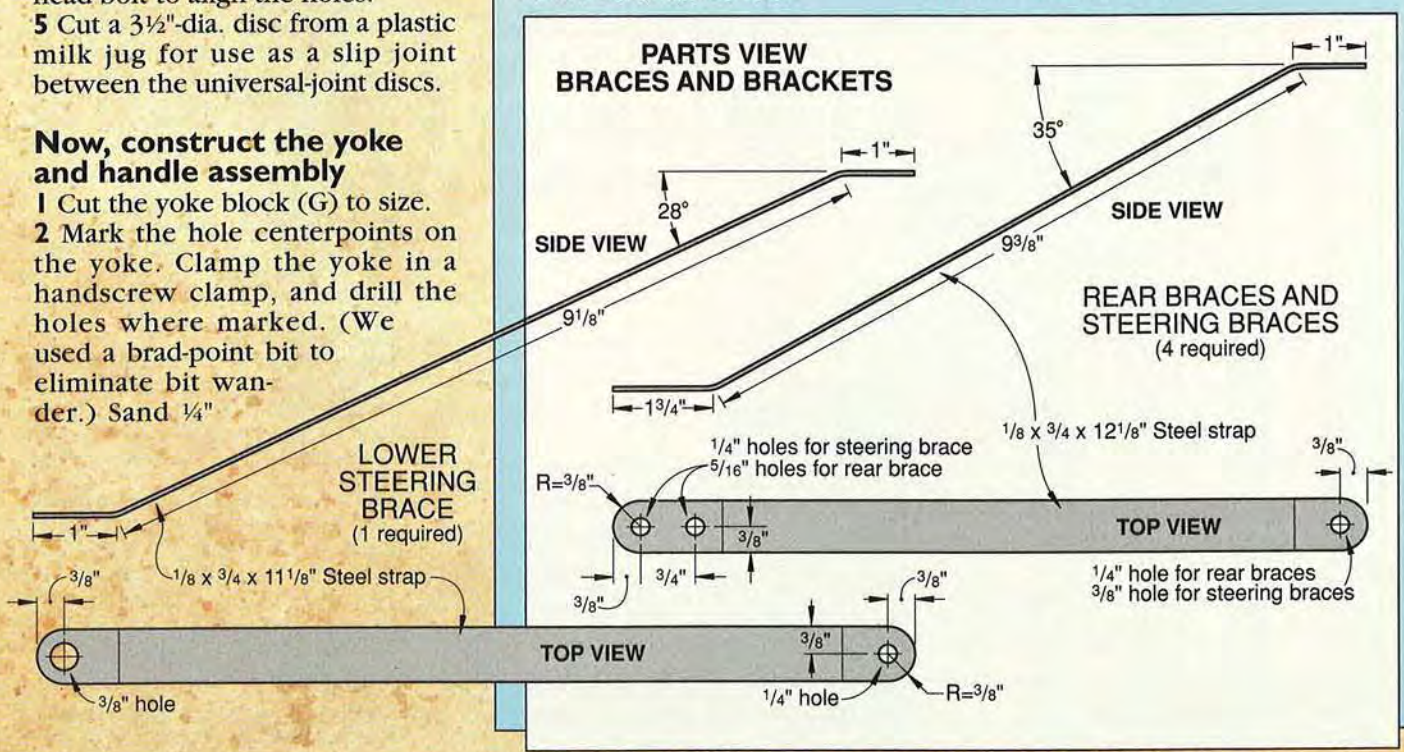
5 Cut a 3½"-dia. disc from a plastic milk jug for use as a slip joint between the universal-joint discs.

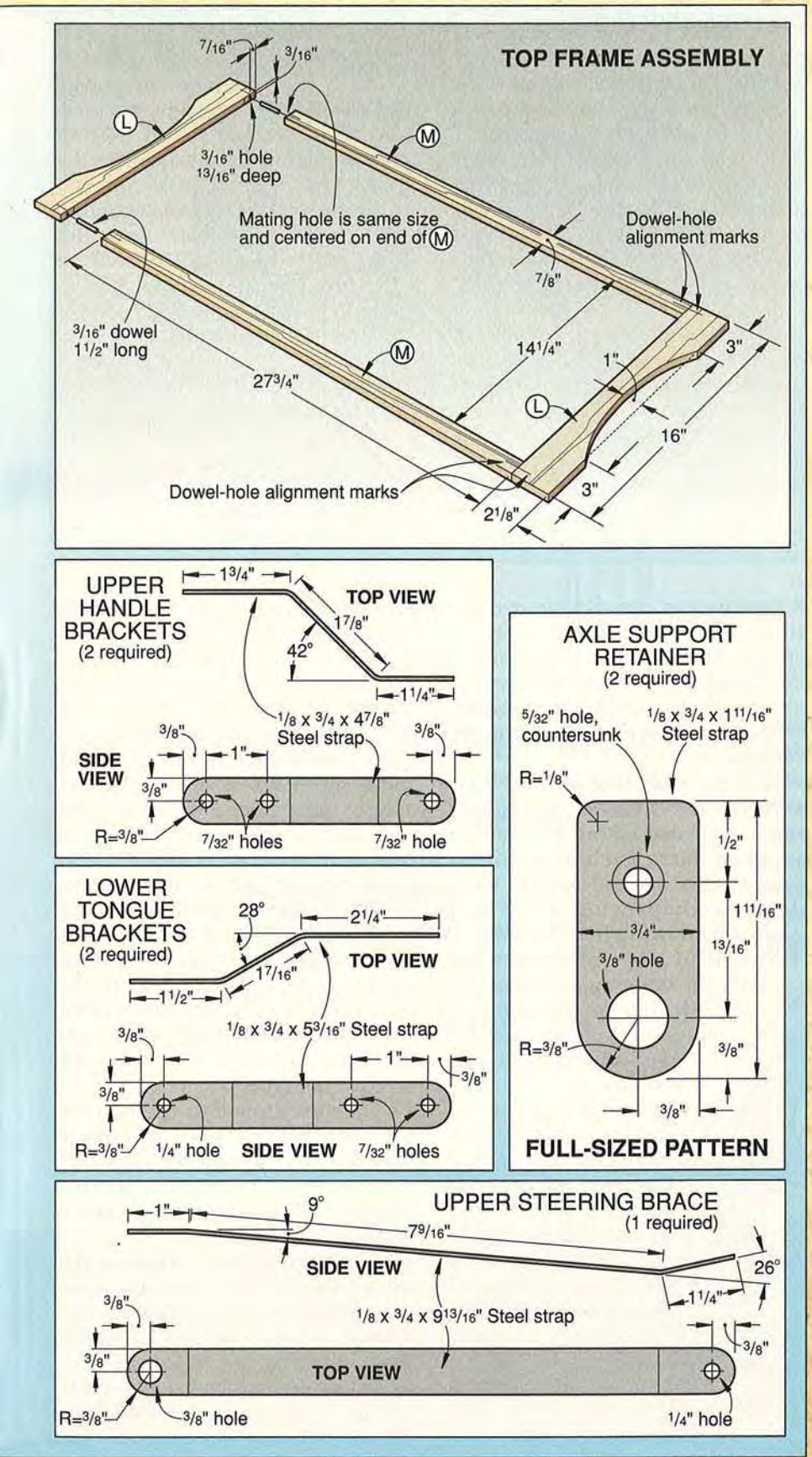
Now, construct the yoke and handle assembly

1 Cut the yoke block (G) to size.

2 Mark the hole centerpoints on the yoke. Clamp the yoke in a handscrew clamp, and drill the holes where marked. (We used a brad-point bit to eliminate bit wander.) Sand ¼"







round-overs along the front edges of the yoke.

3 Cut the tongue (H) to size.

4 To form the handle (I), cut a piece of ⅜" stock to ¾×12". Cut a 3/16" groove 3/32" deep centered along one face of the handle blank. Next, rout ¼" round-overs along the edges opposite the groove. Trim two pieces to 3½" long from the 12"-long strip. With the edges and grooves aligned, glue and clamp the two pieces together to form the handle.

Form the wagon box and top frame assemblies

1 From ⅜" stock, cut the wagon sides (J) and ends (K) to size.

2 Cut a ⅜" dado 3/16" deep 1⅛" from the ends in each side piece (J). See the Exploded View drawing for reference.

3 Sand the interior faces of the wagon sides and ends. Glue and clamp the four pieces, checking that the mating edges are flush and that the assembly is square.

4 Cut the top frame members (L, M) to size. Mark a radius on the front and rear pieces (L) where shown on the Top Frame Assembly drawing. Cut the curved sections to shape.

5 Clamp the top frame in the configuration shown on the Top Frame Assembly drawing. Mark the dowel-hole alignment marks across each joint. Remove the clamps, and use a doweling jig to drill 3/16" holes 13/16" deep in the mating pieces. Glue, dowel, and clamp the top frame together, checking for square.

6 Center and glue the top frame assembly (L, M) on the wagon box (J, K). (We placed masking tape on the areas next to the glued areas to catch glue squeeze-out.)

7 Sand the inside surfaces where part M meets part J. Rout a ⅛" round-over along the top edges of the top frame.

8 Carefully position and clamp the wagon box to the deck. Drill countersunk mounting holes, and screw the box to the deck.

Continued

FUN-TIME RACER

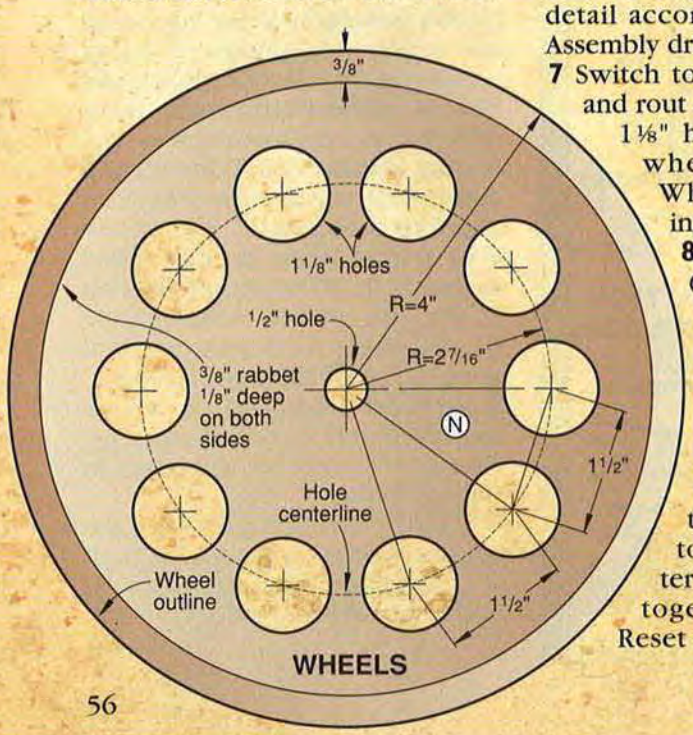
For a smooth ride, add the wheels and tires

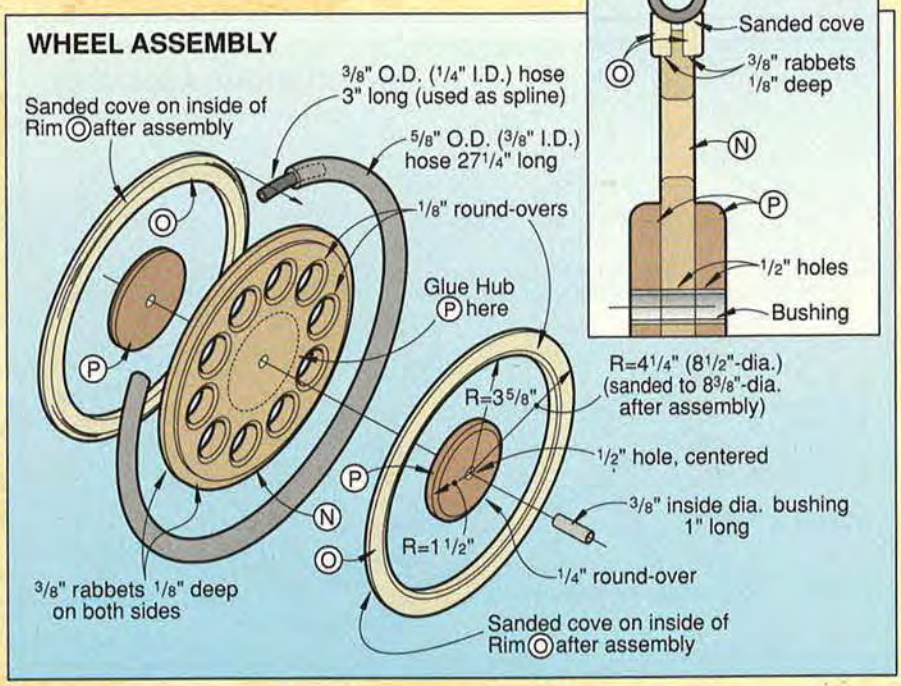
1 Cut four pieces of ⅜" exterior plywood to 9" square for the wheel blanks (N). (Because of its smoothness and paintability, we used ⅜" exterior birch plywood. See the Buying Guide for our source.) Draw diagonal lines to locate the center of each wheel blank. Use a compass to mark an 8"-diameter circle (4" radius) from each marked centerpoint.

2 To lay out ten 1⅛" hole centerpoints on each wheel blank (N), reset the compass, and swing a 2⁷⁄₁₆" radius to create a 4⅞" smaller circle within the 8" circle. See the Wheels drawing for reference. Reset the compass to 1½", start on the 4⅞" circle, and step off the ten centerpoints. You may have to adjust the compass slightly for exact spacing.

3 Drill a ⅛" hole at each centerpoint. Switch to a 1⅛" Forstner bit. One at a time, center the bit over ⅛" pilot holes, and bore halfway through the wheel. Turn the wheel over, center the bit over the pilot hole, and finish boring the hole. This greatly reduces the chip-out at each hole.

4 Using a ½" brad-point bit (it eliminates bit wander), drill an axle hole centered in each wheel.




WHEEL ASSEMBLY
3/8" O.D. (1/4" I.D.) hose 3" long (used as spline)
Sanded cove on inside of Rim O after assembly
5/8" O.D. (3/8" I.D.) hose 27 1/4" long
1/8" round-overs
Glue Hub P here
R=4 1/4" (8 1/2"-dia.) (sanded to 8 3/8"-dia. after assembly)
R=3 5/8"
1/2" hole, centered
3/8" inside dia. bushing 1" long
R=1 1/2"
1/4" round-over
3/8" rabbets 1/8" deep on both sides
Sanded cove on inside of Rim O after assembly
SECTION VIEW DETAIL
Rubber hose
Sanded cove
3/8" rabbets 1/8" deep
1/2" holes
Bushing

5 Cutting just outside the marked line, bandsaw each wheel to shape. Move to the disc sander, and sand the wheels to finished shape. For near perfect-round wheels, see our disc-sanding jig on *page 86*.

6 Fit a ⅜" rabbeting bit into your table-mounted router, and adjust it to cut ⅛" deep. Rout a ⅜" rabbet ⅛" deep along each edge of the four wheels. See the Section View detail accompanying the Wheel Assembly drawing for reference.

7 Switch to a ⅛" round-over bit, and rout along the edges of the 1⅛" holes in the wheels where shown on the Wheel Assembly drawing *above*.

8 To make the rims (O), start by cutting 8 pieces of ¼" exterior birch plywood to 10" square. Using double-faced tape, stick the rim blanks together in pairs. Locate center and use a compass to swing a 3⅝" radius to create a 7¼"-diameter circle on each taped-together pair of blanks. Reset the compass to 4¼", and swing an 8½"-diameter circle on the same four rim blanks.

9 To fit the rims onto the wheels, drill a blade start hole inside each marked inner circle, and use a scrollsaw to cut the rims to shape. Then, use a drum sander to sand the inside edge until the rims fit snugly onto the rabbeted wheels (N). Work slowly to achieve a gap-free fit.

10 Bandsaw and then sand the outside edge of the four sets of rims to shape. With the rims still taped together, rout ⅛" round-overs along the inside edge on one surface of each rim where shown on the Wheel Assembly drawing. Separate the rims and remove the tape.

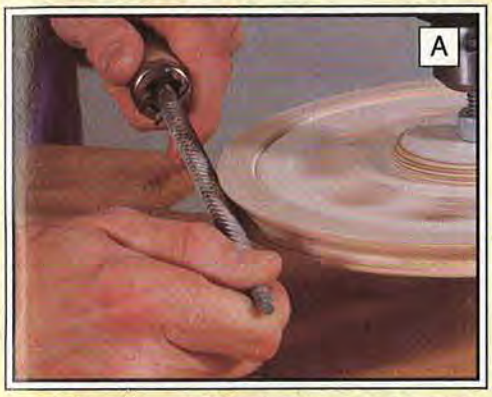
11 Glue the rims into the rabbets on each wheel. (We wrapped masking tape around the rims and through the 1⅛" holes in the wheels to hold the rims in place until the glue dried.)

12 Using the disc-sanding jig shown on *page 86*, carefully sand the wheel/rim assemblies to 8⅜" diameter. *Verify all are the same diameter when you're done.*

13 Mark the cutlines and then bandsaw and sand the hubs (P) to shape. Drill a ½" hole at the cen-

terpoint of each. Rout a ¼" roundover along the outside edge of each hub. Glue the hubs in place, aligning the holes.

14 Using a hacksaw, cut the head off a ½" bolt 3" long. Chuck the bolt into your drill press, and use two nuts to secure a wheel to it. Using the lowest speed on your drill press, use a rat-tail file to contour the inside edges of the rims to the shape shown on the Section View detail accompanying the Wheel Assembly drawing and as shown in Photo A. The coves allow the rubber hose (tire) to fit snugly around the outside of the plywood wheel.



Use a round file to shape and smooth the inside edge of the wheel rims for a flush fit against the tire.

Homemade tires for a soft, inexpensive ride

1 To make a tire, cut ⅝" O.D. (⅜" I.D.) fuel-vapor hose to 27¼" long. Then, cut four pieces of ⅜" O.D. (¼" I.D.) hose to 3" long.

2 Insert half of the smaller hose into one end of the larger hose where shown on the Wheel Assembly drawing. Slide the opposite end of the larger hose onto the protruding end of the smaller hose. Check for a *tight* fit of the tire onto the wheel. Trim the hose if necessary. Use instant glue (cyanoacrylate) to adhere the mating ends, striving for a tight joint. Repeat Steps 1 and 2 for each tire.

3 Lightly sand the tires to remove any visible lettering or exposed instant glue. Set the tires aside for now; you'll epoxy them to the wheels after finishing.

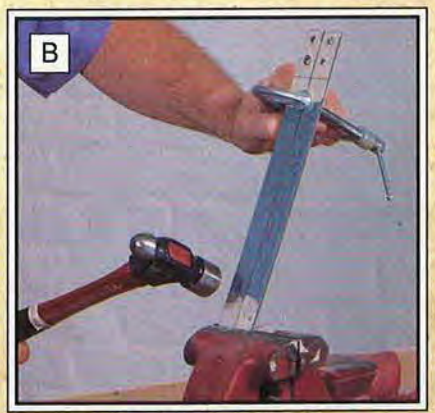
Next, shape and drill the braces and brackets

1 To form the rear braces and steering braces, start by cutting four pieces of ⅛×¾" strap iron to 12⅛" long. Place two pieces of the strapping edge-to-edge (not face-to-face), and adhere duct tape to the back surface to hold them together. Apply masking tape to the opposite surface on the ends. The masking tape makes it easy to mark visible bend lines and radii.

2 Lay out the hole centerpoints and bend lines for the braces on the masking tape where shown on the Braces and Brackets Parts View drawing. Dimple each centerpoint with a center punch. Drill ¼" holes at each dimpled centerpoint, except for the steering braces. They have a ⅜" hole.

3 To bend the ends to the angles shown, clamp the taped-together parts in a machinist's or woodworker's vise so that the marked bend line is flush with the top surface of the vise jaws. As shown in Photo B, use a hammer to strike the steel straps until they conform to the angle shown on the Parts View drawing. Check your bend against the drawing, and continue bending and checking until they match. Repeat for the opposite end of the braces. Then, repeat for the other set of braces.

4 Remove the tape to separate the pieces. Trace around a dime to mark the radius on each end of each brace. Grind the radii to shape and file or sand to remove the burrs.



Align marked bend line on masking tape with top edge of vise jaws, and bend steel strap to correct angle.

5 Repeat steps 1 through 4 above to form the handle brackets, tongue brackets, upper and lower steering braces, and axle support retainers. See the Braces and Brackets Parts View drawing for shape and hole sizes.

Assemble the rear-axle and steering assemblies

1 Using a hacksaw, crosscut two pieces of ⅜"-diameter steel rod to 16" long for the axles.

2 Assemble and glue the rear axle assembly (C, D) in the configuration shown on the Rear Axle Assembly and Exploded View drawings. Repeat for the Steering Assembly and Handle. Check that the parts fit correctly.

Add the finish, and let the good times roll

1 Remove the metal parts from the wood parts. Seal the plywood wheels and oak pieces with a clear exterior finish (we used Minwax exterior polyurethane).

2 Sand the metal parts to remove any burrs or sharp edges. Buff the surfaces of the metal parts with 00 steel wool to rough it up, and then wipe the parts clean with acetone to remove any residue.

3 Apply a coat of primer and two coats of satin black exterior paint to all the metal strapping.

4 Reassemble the metal parts to the finished wagon. Slide a ⅜" (I.D.) by 1" bronze bearing onto each axle where shown on the Wheel Assembly drawing.

5 Apply a bead of epoxy to the wheel coves, and stretch the tires onto the wheels.

6 Slip the wheels and washers onto the axles in the configuration shown on the Exploded View drawing. Secure the axles with ⅜" friction caps. For an added bit of flare, apply a decal to each side of the wagon. See the Buying Guide for our source.

Produced by Marlen Kemmet
Photographs: John Hetherington
Illustrations: Kim Downing

CARVING BY

We all recognize a great carving when we see one. But we can't always put a finger on what makes it so. Here, champion carver Rick Beyer explains what separates top-rank carvings from also-rans. His advice could help you carve your masterpiece.

Sometimes as I wander up and down the aisles of a carving show, a piece will stop me dead in my tracks. "What makes this one such a grabber?" I'll wonder. "Is it some skill or technique, or was the carver just lucky?"

To find out, I went to Racine, Wisconsin, to visit Rick Beyer, a carver whose name often appears on those eye-catching works. Here's what he told me.

Larry Johnston
Special-Interest Editor

"Artistry makes the difference." That's how championship carver Rick Beyer sums up when asked what sets a great carving apart from the crowd. Now "artistry" might sound mystical, maybe even a little bit hoity-toity, but it boils down to some basic, commonsense steps that anyone can follow, according to Rick. Novice or old hand, any carver will do better work by paying attention to some of the elements of artistry, things like research and reference, planning and design.

Research starts you right

"Research is the key element in making a really good piece," Rick says. Before starting a carving, he assembles a mass of reference material about his subject. He haunts libraries, museums, zoos, aquariums—any place he can find photographs, illustrations, and mounted or live examples of the fish or bird he will be carving. He keeps a reference library in his studio, too.

He sometimes shoots his own study photos. "I'll run off rolls of film of a bird or fish so I'll know not only what the whole thing looks like and how it moves, but what each part of it looks like," Rick explains. Commissioned recently by a racing-pigeon fancier to carve a favorite flier, Rick snapped some shots of the very bird he'll be modeling. "I took a lot of tight close-up pictures," he says, "especially of important features like the eyes and primary flight feathers."

Overall photos along with material gleaned from

Form, color, and realistic rendering of the fish emerging from the wave give this carving a sense of motion. Arrested motion always adds interest to a carving.

Print this article

DESIGN

Champion carver Rick Beyer plans for better results

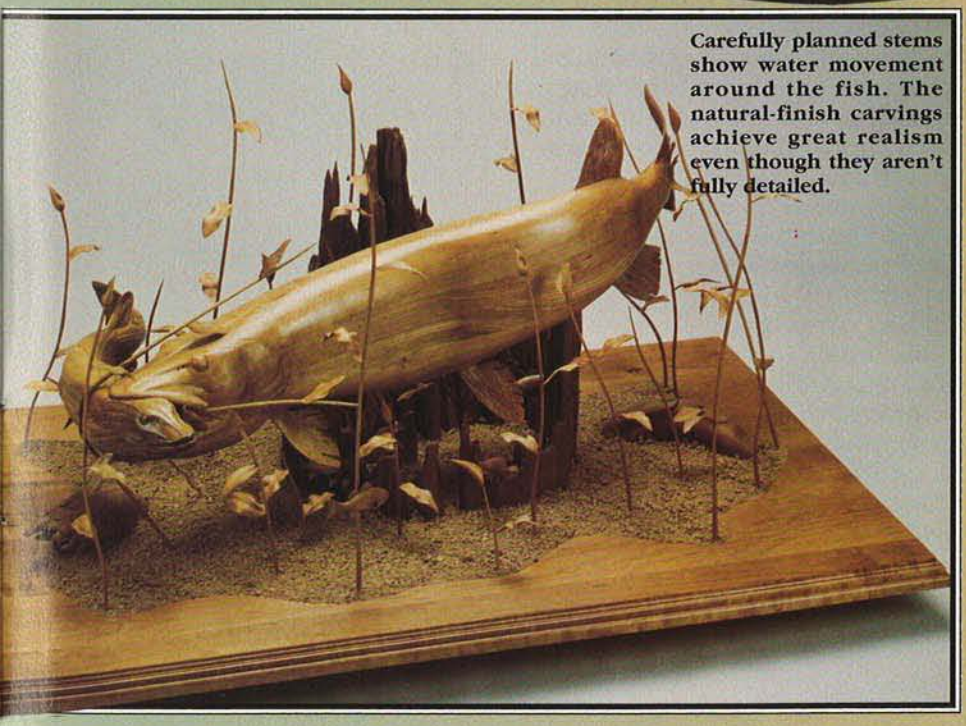
books and magazines will answer questions about proportion. Illustrations or photographs of a bird's skeleton and photos of pigeons in flight and roosting will help when it comes time to create a realistic pose.

Always resist the temptation to feel that you're so familiar with the subject that you don't need to do any research. "Chances are," says Rick, "you have never studied anything as intently as you'll have to for a top-rank carving project. You just can't work out of your head with nothing to look at," he says. When he carves, the reference materials may outnumber the tools on his bench.

The abstract shape draws the viewer's eye to the most important features of this lacquered woodcarving—the two fish emerging from the form.

Plan for perfection

Once you gather your reference material, you're ready to design the project. "Sketch your carving, first," Rick suggests. You don't need to draw detailed plans, just some loose sketches. These will help you decide such basic questions as whether the subject will be sitting or standing; looking up, down, left, or right; in action, or at rest.



Carefully planned stems show water movement around the fish. The natural-finish carvings achieve great realism even though they aren't fully detailed.

And while you're designing the carving, consider how you will display the finished piece. Will it be on a base? If so, design the base to complement the carving. You don't want it to look like an afterthought. The base for the turtle carving on *pages 60-61*, for instance, helps depict motion and instantly places the turtle in a natural location—underwater.

During the design stage, Rick asks himself a lot of questions. Does the pose look stiff and unnatural? Does that joint really bend that way? Is this a distract-

Continued

ing element? Being critical at this stage helps avoid the kind of clinkers that demote a carving to second-rate.

Watch for technical challenges, too, Rick suggests as he pulls a magazine from a desk drawer. The cover photo shows a heron standing on one leg, the other raised up beside its head. He's been commissioned to model a carving on that photo.

"I'll put it on a brass base, cast to look like a shoreline puddle," Rick says. "The long, skinny legs will have to be made separately from the body," he comments. "I could carve them from wood, but it would be better to cast them in metal, like the base. Then," he says, "I could cast the one leg [the one the bird stands on] as part of the base, rather than making it separate and trying to fasten it to the base later."

For this carving, "The Thirteenth Tee," Rick integrated the stand, which he styled to look like an outsized, broken off, weathered golf tee, into the overall design.

Sometimes, the best solution to a carving problem comes by working it out in three dimensions. "Lots of carvers make clay mockups first," Rick notes. "I don't like working with clay, so I don't. Sometimes, I *will* make a wooden model before I start, just so I can see how things are going to work out." Often, the wooden model is no less than a full-sized rendition of the proposed carving.

You might even need to consider the sequence for your work. For example, take a carving Rick recently started, a mythical figure holding a dove on an outstretched hand. "I haven't done the main figure yet, but I've carved the dove," he remarks, pushing the basswood bird across his desk.

"This way, I can model the hand to hold the bird properly. With the dove in place, I can carve the figure's eyes to focus on the dove," he explains.

Trying to place the bird in front of already-carved eyes could result in an arm and hand position more suited to a carving of a contortionist, Rick adds.

Find your style

"Whenever someone comes to me for carving advice," Rick says, "I tell them one thing: Develop your own style." Having your own style simply means that there's something about your work that enables viewers to recognize it as yours.

"Style can be anything that sets your work apart—a look, the wood you use, a certain carving technique, a way of painting. Even specializing in a certain subject could become your style," Rick explains. "I've carved a lot of fish in cherry wood with a natural finish; it came to be recognized as my style."

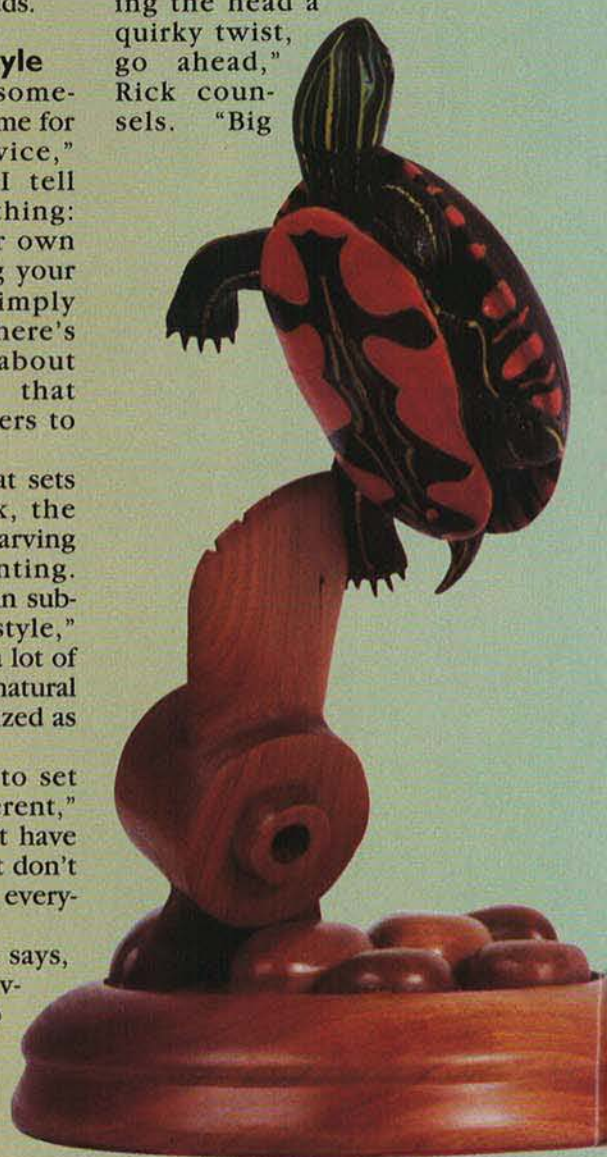
"Most carvers just need to set their minds to being different," Rick adds. "Now, you don't have to be bizarre or strange; just don't make your carving look like everyone else's."

To accomplish that, Rick says, "loosen up, enjoy the carving, get some feeling into the piece." But, what if you're set on carving painstakingly accurate waterfowl, for instance? Wouldn't loosening up and being different make your carving a less-accurate rendition of nature? Probably, Rick agrees. But to him, that's no problem.

Again he stresses design. "Carvers should set their minds into design rather than reproduction," Rick maintains. "I mean, God makes ducks; carvers should make art."

"Get away from feather-counting somewhat and look at the total design. Every part needs to be pretty realistic, but how you put them together determines the carving's success as art," he says.

"If you feel like giving the head a quirky twist, go ahead," Rick counsels. "Big



deal, so someone doesn't like it. There are probably ten other people who do."

Couldn't that shoot your chances of winning a show ribbon? "Not necessarily," Rick replies. "And, anyway, carving for a judge or show juror can backfire. If you go to a competition trying to please the judges rather than yourself, odds are that what you think the judges want isn't what they're looking for at all."

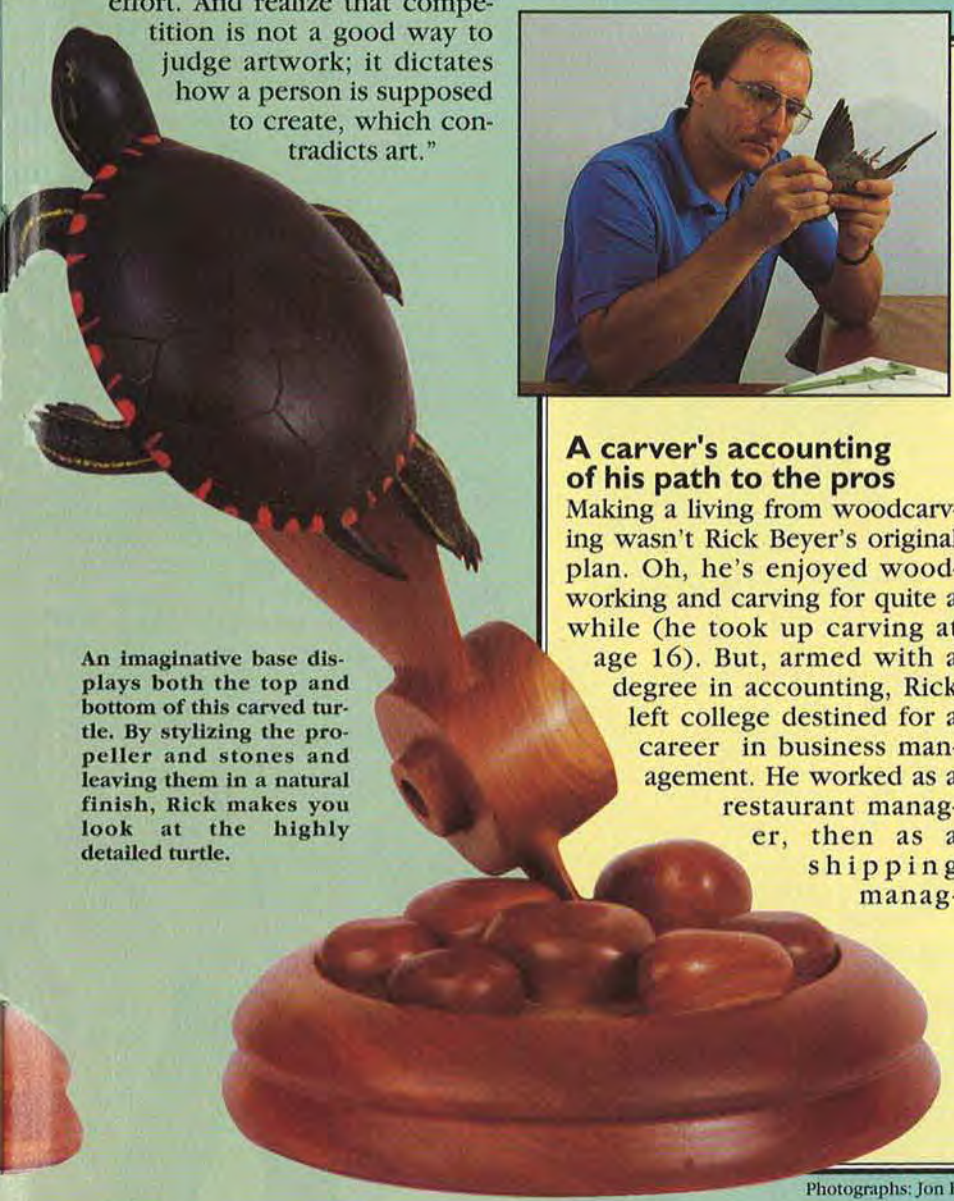
Rick's best advice on shows? "Enter work that shows your best effort. And realize that competition is not a good way to judge artwork; it dictates how a person is supposed to create, which contradicts art."

In other words, when it comes down to passing judgment on your work, you have the final say. "There are no set rules," Rick says. "That's why so many of the top carving artists have totally different carving styles. They all have their own ideas."

What about workmanship?

With the planning and designing done—the largest part of the project, Rick says—it's time to carve. And, according to this award-winner, you may already have the skills of a big-time carver and not even realize it. "Most people who know how to carve can meet the technical demands of the show circuit," he declares.

Good craftsmanship—clean cuts, well-executed details, fine finishing or painting—always wins a lot of admirers. But following the path of artistry can lead you and your work to the winners' table more often. "There are a zillion good craftsmen; but only about one out of 20 pays any attention to artistry," Rick comments. "Those who combine artistry with craftsmanship win the prizes, and win them consistently."



An imaginative base displays both the top and bottom of this carved turtle. By stylizing the propeller and stones and leaving them in a natural finish, Rick makes you look at the highly detailed turtle.

A carver's accounting of his path to the pros

Making a living from woodcarving wasn't Rick Beyer's original plan. Oh, he's enjoyed woodworking and carving for quite a while (he took up carving at age 16). But, armed with a degree in accounting, Rick left college destined for a career in business management. He worked as a restaurant manager, then as a shipping manager for a furniture manufacturer.

All the while, he worked on perfecting his carving. "I was working 40 hours at my job, and spending another 40 hours a week carving," he recalls. He entered shows, took on some commissions, and generally pursued his art as a hobby that paid its own way. Pretty soon, he opened R.J. Beyer Galleries in Racine as a part-time business, a place to display (and sell) his carvings and other artwork.

About the time he was opening the gallery, the company he worked for pulled up stakes to move to another state. Though offered a transfer, Rick and his family opted to stay in Racine. For work, he decided to take a chance on art. "Between the job and carving, I was putting in 80 hours a week. I figured if I just carved a little more, we could make it," he says.

That was nearly a decade ago. Today, Rick's carvings reside in private, public, and corporate collections around the nation. He teaches carving classes, carves for shows and exhibitions, sells work through his gallery, and takes on commissions. He's no longer just taking a chance on carving.

Photographs: Jon Bolton

CUSTOM-CRAFT YOUR OWN RAIL-AND

Few projects can showcase your woodworking skills better than a handsome set of interior doors. But if the seeming complexity of door construction has kept you from building your own, take note. We teamed up with master craftsman Chuck Hedlund and developed a set of straightforward procedures that enable you to build one, or a whole house-full, of these elegant rail-and-stile doors.

Note that these techniques apply only to interior-door construction. Exterior doors require entirely different construction methods.

Print this article

The job's not begun until the paperwork's done

You must first calculate and draw all the dimensions of the door on paper. Start with the measurements of your door opening, side jamb to side jamb for width, and top jamb to finished floor for the height. Then subtract the dimensions of the various parts to develop your bill of materials. Don't be tempted to build the door slightly smaller than the opening. You trim the door to fit after you've built it.

For four-panel doors such as ours, tradition and practicality dictate a few standard widths for the rails, stiles, and mullions as listed *below*. These proportions allow you to center a door knob with a 2⅜" backset on the stile.

Top rail: 4¾"	Stiles: 4¾"
Lock rail: 8"	Mullions 4⅝"
Bottom rail: 9⅝"	

Feel free to vary these sizes for a different style or look. To calculate the rest of the dimensions, refer to the box at *right*.

Good wood for a good door

We used oak for our door, but any kiln-dried, straight-grained wood will do. Poplar makes an excellent paint-grade door. If you use a clear finish, select evenly colored pieces with complementary grain pat-

-STILE DOORS Our step-by-step guide tells how

HOW TO SIZE UP A DOOR'S DIMENSIONS

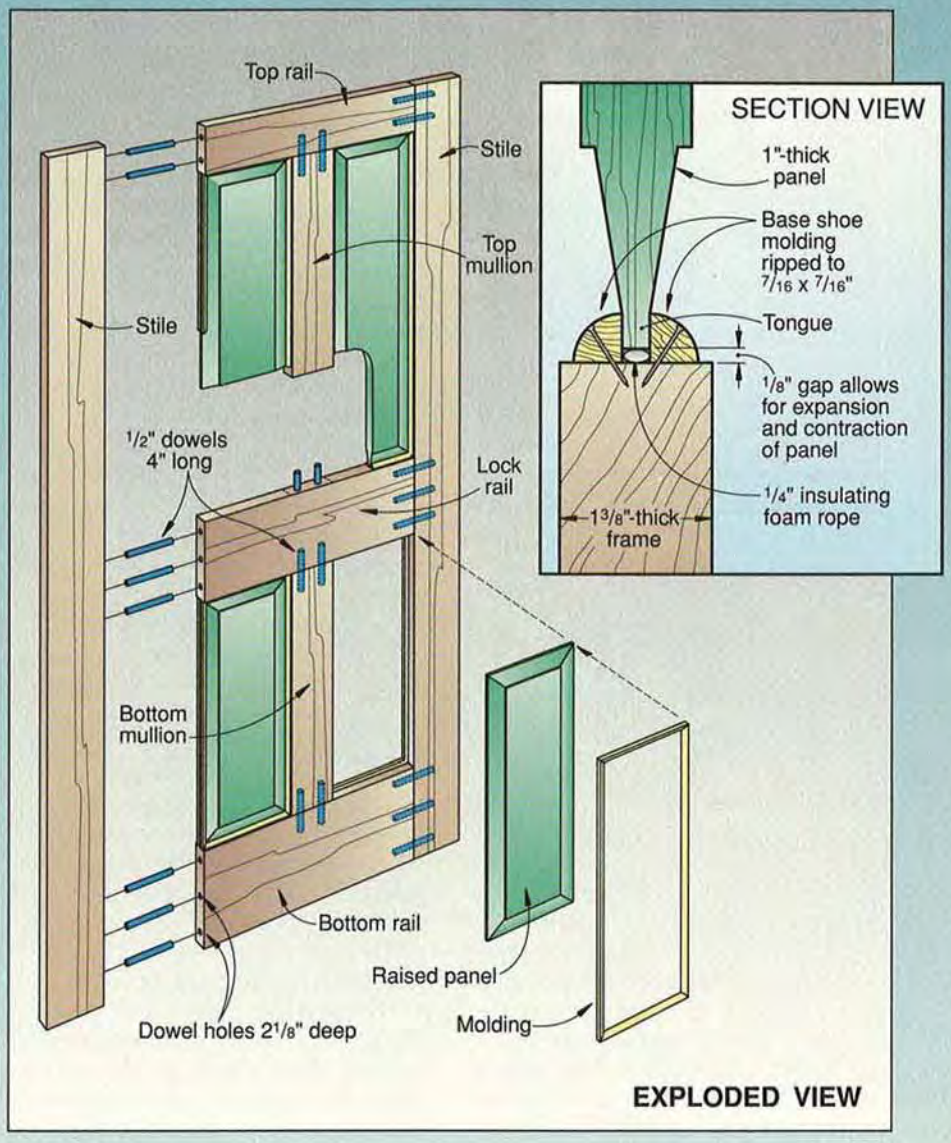
STILES
Height equals the full length of the door opening, top jamb to finished floor.

RAILS
Length equals the width of the door opening between the side jambs, minus the width of the two stiles.

TOP MULLION
Length equals the height of the door minus the width of top rail, minus 36", minus half the width of the lock rail. (36" is the recommended height from the floor to the middle of the doorknob and lock rail.)

BOTTOM MULLION
Height equals 36" (or the height of the center of your doorknob) minus the width of the bottom rail, minus half the width of the lock rail.

PANELS
The dimensions of the panels match the inside dimensions of the frame minus ¼" in length and width.



terns. You'll need 8/4 stock for the rails, stiles, and mullions; and 5/4 stock for the panels.

Start by machining your rails and stiles

Using a jointer, flatten out any bow or twist that you find on the faces of the rails and stiles. Once these pieces are perfectly flat along their length, use a thickness planer (if necessary) to bring them down to 1⅞16". This leaves an extra 1/32" on both faces for scraping and sanding. Then joint the edges of the boards to their final width. Finish by crosscutting the pieces to their final length, but cut your stiles 2" longer than the door height so that you have a 1" lug on both ends to protect the door until it's hung. If you want wide bottom and lock rails like ours, glue them up from two or three narrower pieces.

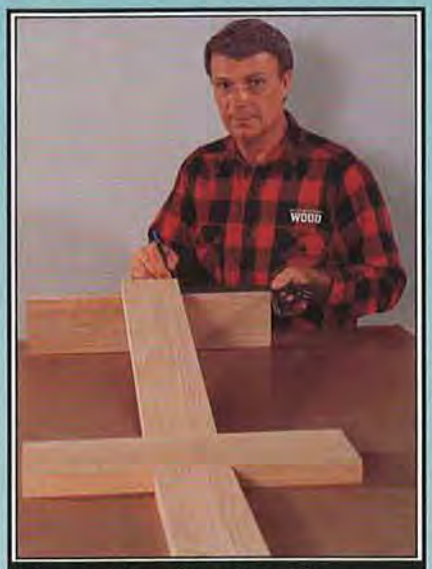
To build up the panels, edge-glue two pieces of 5/4 stock for each panel, and then plane them down to their final 1" thickness. If you want a different panel style from on ones shown, see "Door Panel Options" on *page 83* for a variety of styles and details.

Laying out the frame

To assemble the door you'll need a clean, flat, layout table about 1' longer and wider than the finished door. Start by laying out your pieces and face marking them with a colored lumber crayon so as not to get them mixed up or turned around later. Then lay out your rails and mullions as shown in *Photo 1* on the next page. At

Continued

RAIL-AND-STILE DOORS



1. Lay out the rails and mullions.

the top of the door, place the mullion as close to the center of the rail as you can get with a ruler or tape measure.

Now, use a combination square for your final check. Butt the blade of the square against the mullion, slide the head of the square flush with the end of the rail, and tighten it in place. Check the fit of the square on the other side and, if necessary, divide the difference and check again. This gives you more accuracy than reading numbers off a tape measure. After you've centered the mullion, scribe pencil marks on the inside edges of the rail where the mullion abuts it. Use the same technique to mark the mullions on the lock rail and bottom rail.

For fast, foolproof alignment, try our doweling jig

You can use a standard doweling jig to bore your holes, but our scrapwood jig automatically aligns all your dowel holes, and eliminates the need to measure and mark a lot of pencil lines.

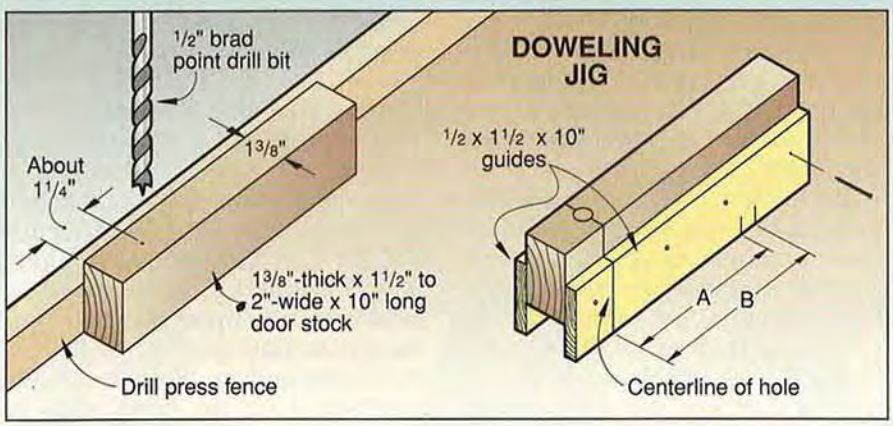
To build the jig, cut a scrap piece that's exactly the same thickness as your frame, as shown in the illustration *below*. Put a ½" brad-point bit in your drill press, and attach a fence to the table. Use the fence to center the drill bit on the thickness of the scrap piece, with the brad point about 1¼" from one end.

Keep the motor off, but lower the drill bit until the brad makes a small dent in the wood. Raise the bit, turn the wood around, and lower the bit, again making a very slight indentation. By carefully nudging the fence you'll get to the point where the brad makes an indentation in exactly the same place regardless of which side of the jig is against the fence.

At that point the bit is centered. Turn on the drill press and bore a ½" hole through the wood. To complete the jig, glue and nail guides to each side, as shown.

Here's the secret to our self-aligning doweling jig

To bore perfectly matching dowel holes, simply clamp the jig on the end of a mullion, and flush with one edge. Bore the first hole as shown in *Photo 2*. Turn the jig around and bore the second hole.



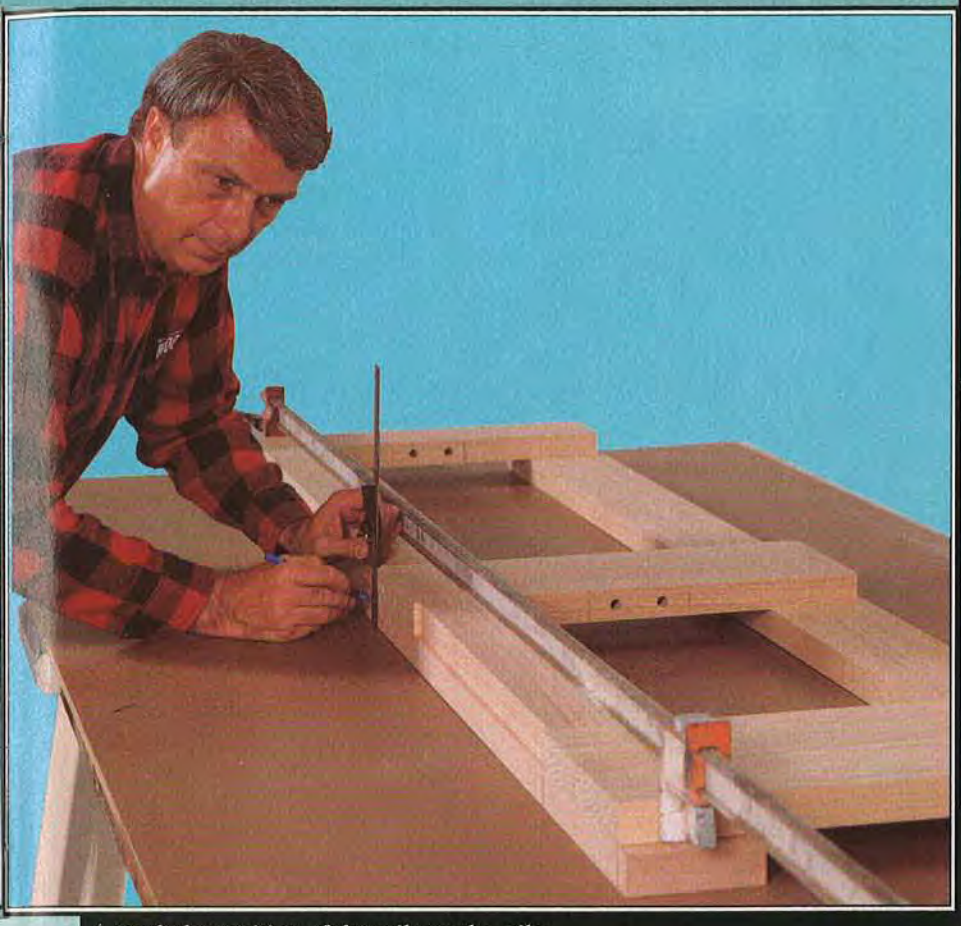
2. *Top:* Bore dowel holes in the end grain of the mullions.

3. *Bottom:* Use the jig to align the corresponding dowel holes in the edges of the rails.

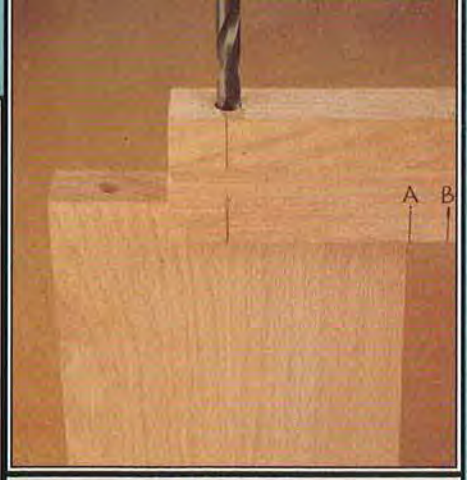
Clamp the jig flush with the pencil mark on the adjoining rail, as shown in *Photo 3*, and bore. Since the pencil mark represents one edge of the mullion, the hole you drill should align with the hole in the end of the mating mullion. Turn the jig around, align it with the other pencil mark, and bore the other hole. Bore all the holes 2⅛" deep. See the Exploded View drawing for the location of all the dowels.

Put the squeeze on before marking the stiles

To mark where the rails join the stiles, lay the stiles flat on the table as shown in *Photo 4*. Clamp the mullions between the rail ends for the correct spacing, and lay this assembly on top of the stiles. Then, mark the position of



4. Mark the position of the rails on the stiles



5. *Top:* Bore the center dowel hole on the edge of the lock rail.

6. *Bottom:* Bore the corresponding center dowel hole in the stile.

the rails on the edges of the stiles.

Now, you need to locate the position of the middle dowel holes for the lock and bottom rails. To do this, place the jig over the end of the lock rail with the guide hole centered in the middle. Mark on the jig where the top edge of the rail meets the overhanging end of the jig and label that "point A," as shown in *Photo 5,* then drill the hole. Position point A on the corresponding pencil mark on the stile, and drill the matching hole as in *Photo 6.* Follow the same procedure for the bottom rail, marking that (since it's slightly wider) as "point B" on the jig. To avoid confusion, make sure that if you take your reference mark from the bottom edge of the rail, you transfer it to the bottom mark on the stile.

Big projects need big dowels, so make your own

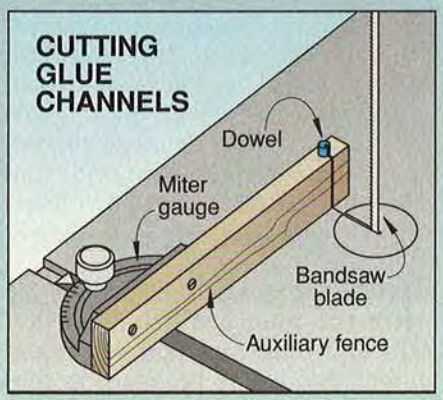
We cut our own 4"-long dowels from ½"-thick oak dowel rods to give the door frame the strength it needs. To provide an escape route for glue and air, cut two glue channels in each piece with the jig and a bandsaw as shown in the illustration at *right.* Bevel the dowel ends and check the fit in the holes.

If the dowels fit too tight, get a metal plate at least ¼" thick, bore a ½" hole through it, and hammer the dowels through the hole to size them. If the dowels are still too tight, tap the top of the hole in the metal plate a few times with the round end of a ball peen hammer. That will close up the hole enough to remove more wood from the dowels.

And now, the main event—glue-up number one

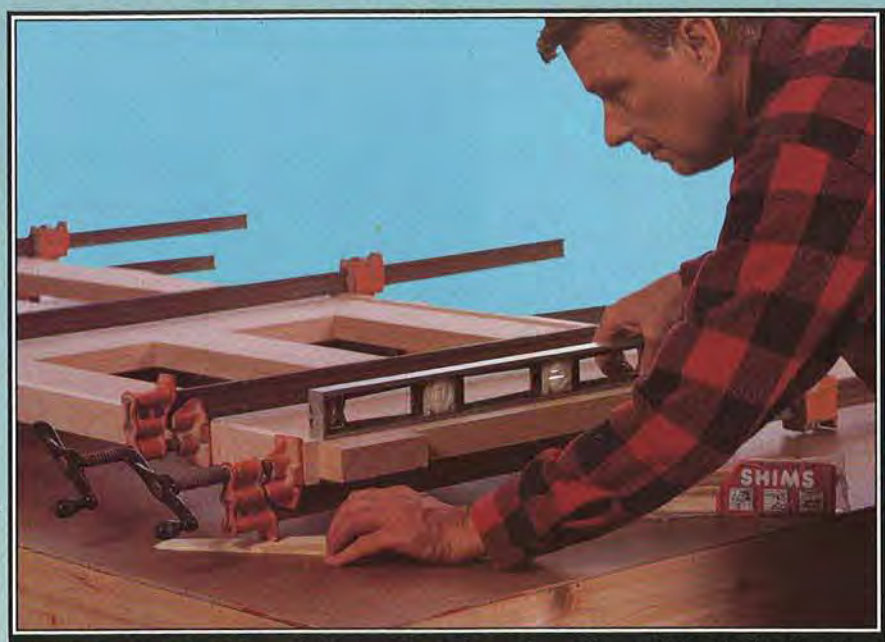
Glue-up the rails and mullions by spreading glue in all the holes and inserting the dowels. Clamp the pieces together, and slip the stiles under the ends of the rails. Align the edges of the rails with the

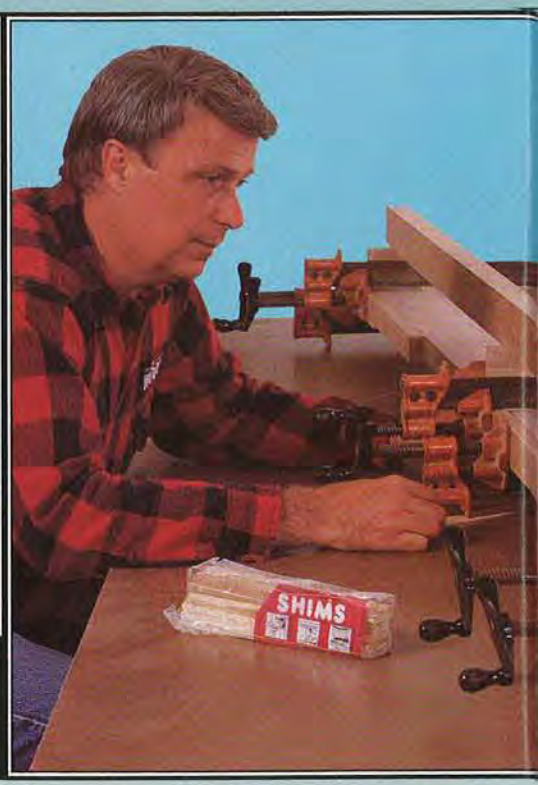
Continued



7. Use the marks on the stiles to keep the first glue-up square.

RAIL-AND-STILE DOORS





8. *Above:* Dowel glue, and clamp the rails to the stiles, and level the frame across the rails using shims where necessary.

9. *Right:* Check and adjust the frame to ensure it lies flat by sighting across its length with a straightedge. Shim up any low spots to meet the straightedge.

pencil lines on the stiles as shown in *Photo 7*. If your assembly is square, the rails will just touch the lines on the stiles in all four corners. If they're not aligned, ease off the clamping pressure on one side and watch how that moves the rail in relation to the line. Adjust the pressure until the stiles are touching the pencil lines on all four corners.

Glue-up number two

After the glue has dried on the rails and mullions, you can glue, dowel, and clamp the stiles to the rails to complete the frame. Put one clamp over and one clamp under each rail. Then level the assembly. Shim the bottom of the clamps until the door lies level across each rail as in *Photo 8*. To check the stiles for flatness, place equal-height blocks on each rail near the stiles and lay a straightedge or long level on top of the blocks. Shim under the clamps if necessary to bring all the blocks up to the straightedge, as shown in *Photo 9*. This span does not need to be level, just straight.

Let's make the panels

A good time to make the panels is while you're waiting for the glue to dry on the door frame. Measure the openings in the frame, and then cut the panels ¼" smaller in height and width to get a ⅛" gap around the perimeter of the panel. This gap compensates for the swelling and shrinkage caused by changes in humidity.

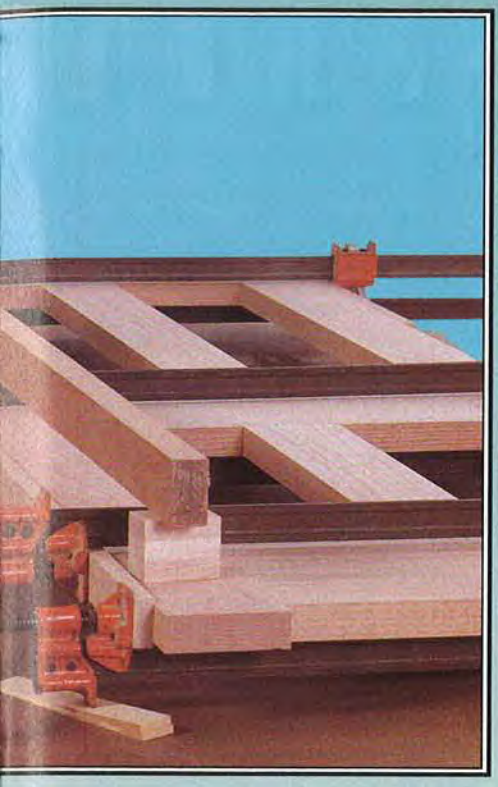
We used a panel-raising router bit (Freud Model 99-216) to cut the bevels, as shown in *Photo 10*. To minimize tearout when routing, cut the tops and bottoms first, and finish by routing the long edgest. (You also can create a raised panel with a tablesaw. See our article on *page 83* for this technique.) Leave a ⅜"-thick tongue around the perimeter of the panel to slip into the channel created by the molding.

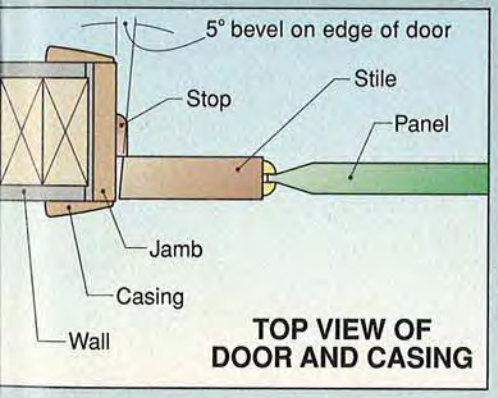
Size the door to its opening

The best time to size the door to the opening is before you put in the panels. The door frame weighs less and is easier to handle at this point. First, place the door

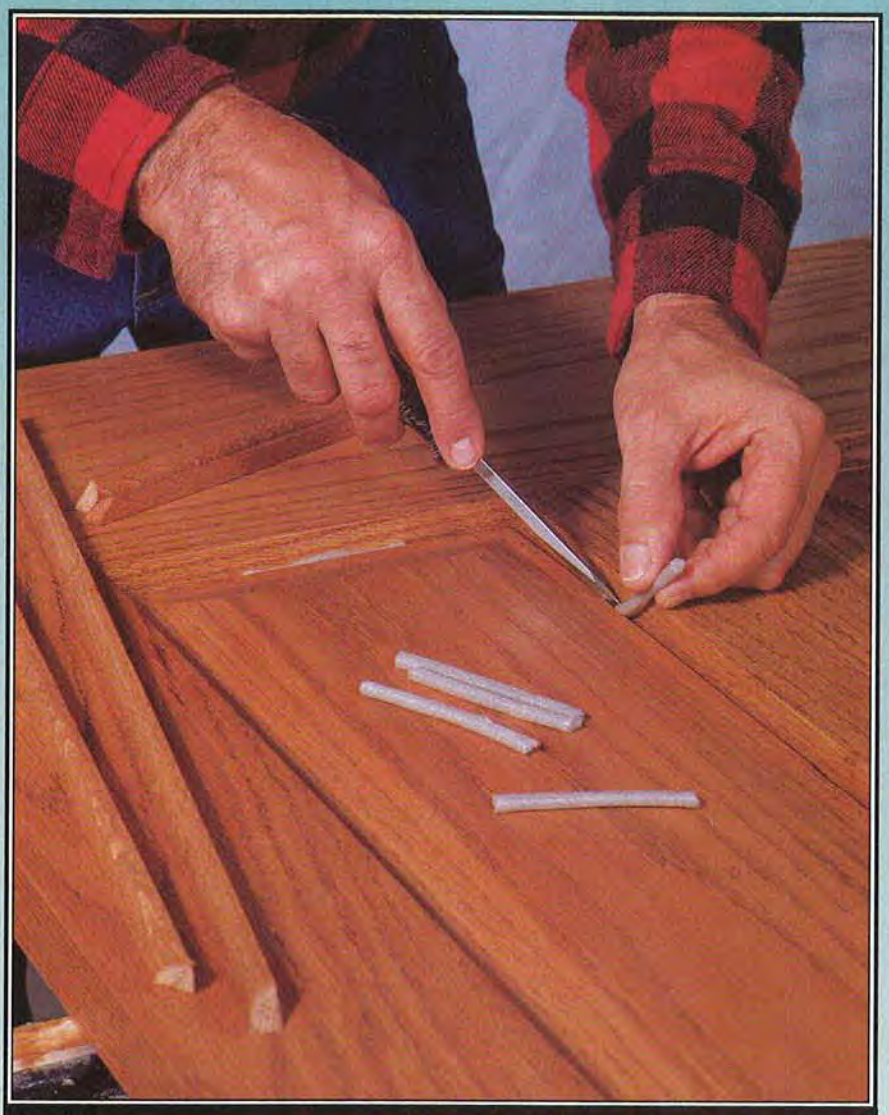
10. Rout the edges of the panels.

in the opening and push it tight against the stops. Then scribe any irregularities in the jambs onto the edges of the door and leave ⅛" clearance from the jambs and floor. Now remove the door from the the opening and carefully plane the edges down to the scribe marks. Check the door fit in the opening again and if you have a good fit with the proper





TOP VIEW OF DOOR AND CASING



11. Insert foam spacers between the panel and the frame, and then cover them up with mitered moldings. The foam stops rattles and centers the panels.

clearance all the way around, remove the door again and plane a 5° bevel on the edges of both stiles, as shown in the drawing *above*. These bevels enable the door to clear the jambs when opening and closing.

At last, you're nearing the finish line

To hold in the panels we used oak base shoe molding ripped to 7/16×7/16". Use a featherboard to control the molding during the cut and a zero-clearance insert to prevent the small pieces from falling inside your tablesaw.

After you've ripped the molding, prepare the door for finishing. Sand or scrape the intersecting parts flush, and sand everything with 150-grit sandpaper and then 220 grit. Stain all the pieces of the door—panels, frame, and molding—before you assemble them. This will prevent unstained edges from peaking out under the molding when the panels shrink during dry weather. (We used Minwax Golden Oak stain.)

After the stain dries, tack a stop to the inside edges of the door frame. Miter the moldings, and nail them in place with 3d finish nails using the stop as a guide. To avoid splitting the wood, drill pilot holes for all the nails.

Remove the stops, turn the door over, and drop in the panels. Insert short pieces of ¼" foam insulating rope between the panel edges and the door frame, as shown in *Photo 11*. Cut and nail the remaining moldings to the door. Then apply your final finish coat. (We used a clear Watco Danish Oil). Hang the door and set the lock as you would with any other door, but use extra-sturdy hinges and extra-long hinge screws to support the weight.

Written by Tom Jackson Illustrations: Kim Downing Photographs: John Hetherington

BOWLS WITH

Looking for new turning designs? Then, look to the past. Arizona turner Phil Brennion finds beautiful woodturnings in classic Native American pottery shapes from the Southwest.

Long before there was woodturning, there was pottery. As early as 3500 B.C., Sumerian potters threw jars, bowls, and other vessels on hand-powered potter's wheels. That was more than 3,000 years before Grecians invented the woodturning lathe.

By the time woodturners developed the equipment, tools, and techniques necessary for turning hollow forms, such as vases, urns, and bowls, the shapes and proportions for those forms had been defined by several thousand years of potterymaking. With few exceptions, woodturners today tend to follow classical design guidelines in creating new pieces. And they do it for a very good reason: Those ancient rules still lead to beautiful bowls.

Time-honored designs

Woodturner Phil Brennion of Chino Valley, Arizona, is one who recognizes and appreciates that design sense from the past. He draws inspiration for his stunning turned vessels from Native American pottery of the Southwest United States. In fact, it was his love of those shapes that led him to take up woodturning in the first place.

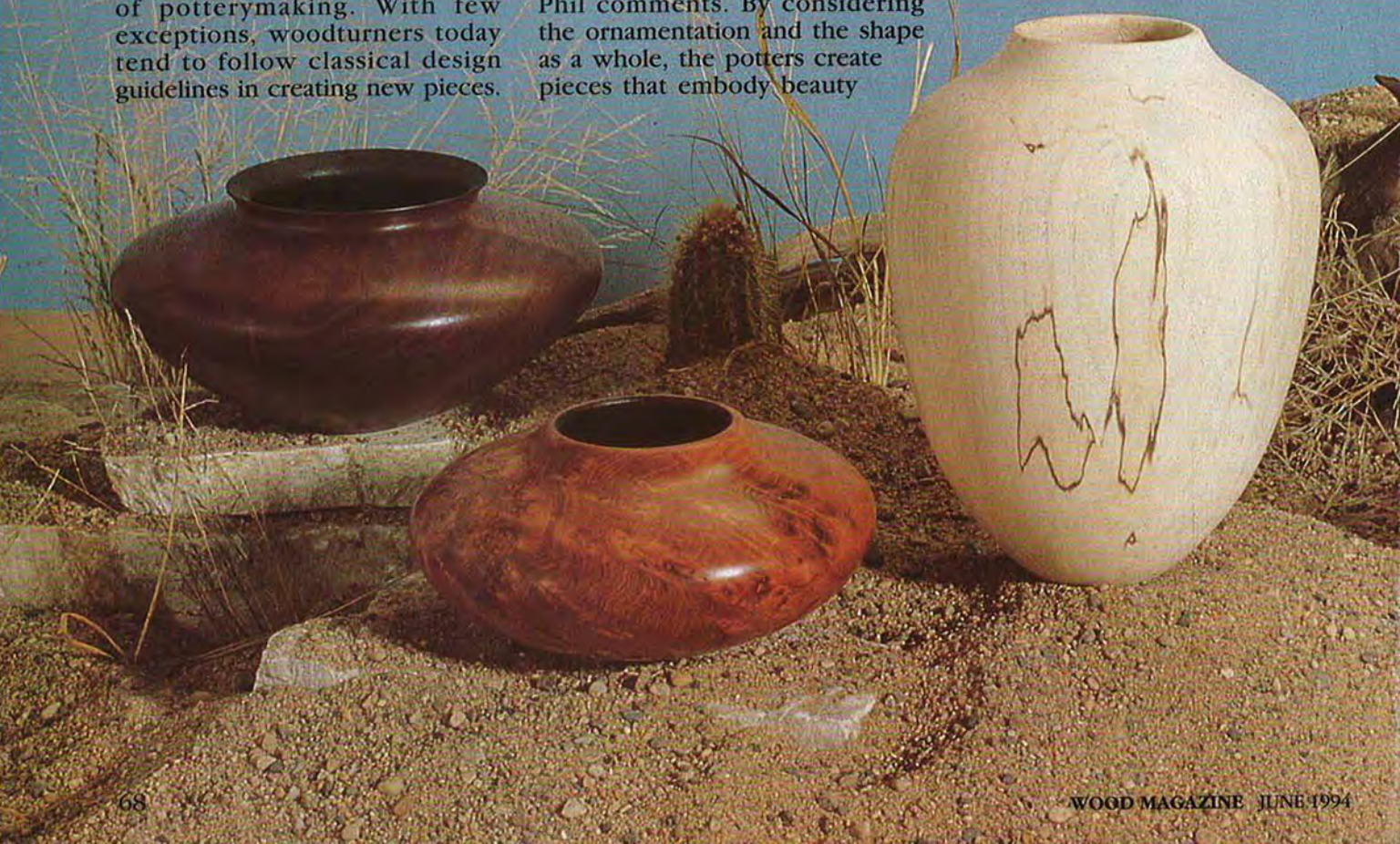
Like so many timeless designs, the Southwest native pottery Phil likes so much combines simplicity with practicality. The pots also show a unity of design he admires. "Tribal potters often throw their pots knowing what adornment—usually painted designs—will be put on them," Phil comments. By considering the ornamentation and the shape as a whole, the potters create pieces that embody beauty and harmony—no element of the whole seems out of place nor overwhelms any other element.

"The same should hold true for woodturning," Phil maintains. The wood grain and the vessel shape should complement each other, not fight each other for attention. "You often can show off the best grain features in a piece of wood" he says, "by choosing a shape that accentuates it. Also, use simple shapes for highly figured wood"

Principles of proportion

Numerous formulas, mathematical proportions, and rules-of-thumb have been handed down through the centuries in attempts to quantify good design. Phil considers three of these guidelines above all others when turning his Southwest containers:

•Make the base smaller than the mouth of the vessel.



A PAST

Native American pottery shapes make great turnings

•Place the major diameter above or below the middle of the pot, not right on it.

•Curve the sides from the neck out to the major diameter and back in to the base. Don't make straight-sided forms.

Phil often sketches an outline—or a template—for a piece before turning it. But he doesn't like to lean too heavily on preplanned shapes. He finds enjoyment in watching the vessel emerge from the piece of wood on the lathe. "Don't be a slave to a template," Phil cautions. "Use it as a guide."

Phil's turning technique

The Arizona turner begins a bowl by bandsawing a blank a little larger than the diameter of the finished piece. The extra diameter allows him some leeway in the turning's final shape—to accommodate wood features, for instance.

After bandsawing his blank, Phil mounts a faceplate on the side that will be the bottom of the bowl. Usually, he attaches the faceplate directly to the blank with #10×1½" sheet metal screws.

When he's dealing with a burl or a thin piece of stock (or one he wants to get the biggest possible turning from), he glues a scrap-wood waste block to the blank with yellow woodworker's glue. Then, he screws the lathe's faceplate to the waste block.

Unlike many bowl turners, Phil always uses the tailstock as he turns the outside profile. The tailstock lends extra support to the turning and keeps it running true, helping prevent breakage at the small base.

With the lathe running at 1,000 rpm or less, Phil rounds the blank and establishes the top of the rim and the bottom of the base with parting-tool cuts. Then, he turns the blank to the major diameter and forms the profile with a ⅜" or ½" bowl gouge.

He leaves the neck and base somewhat larger than finished size for extra strength while he cleans out the inside. "To start the inside, I bore through the neck with a Forstner bit, to within about ½" of the base," Phil explains. A drill chuck mounted on the tailstock holds the bit.

After boring the starting hole, Phil cleans out the inside with a ½" round-nose scraper or an angled boring-bar tool, depending on the design. (He used the round-nose scraper for all of the bowls shown in this article.)

With the bowl cleaned out, Phil completes turning the outside. As for wall thickness, "it isn't necessary to go for ultimate thinness—

Continued

BOWLS WITH A PAST

3/16" is good," the turner says. "Shapes are most important to me; I don't get lost trying to turn down to microwalls."

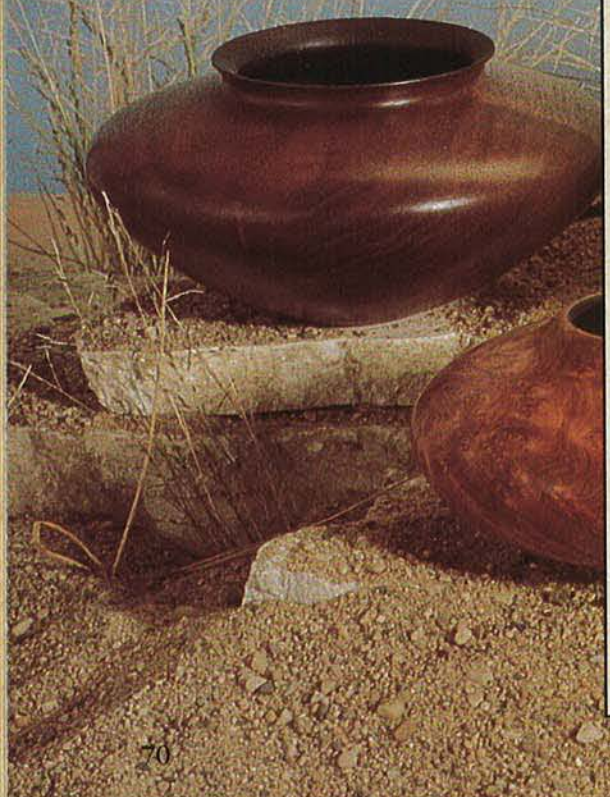
He then turns the neck and base to final outside size, and sands to 320 grit. He usually doesn't sand the inside of a bowl. When he parts off the turning, he forms a slightly concave base for stability.

Some finishing tricks

Phil favors semigloss finishes for his work. "Southwest designs generally don't work well with high-gloss finishes," he says. He typically applies three coats of Deft semigloss lacquer, sanding between them. He goes over the last coat with steel wool, applies Trewax, and buffs the piece. The amount of buffing he does allows him to control the gloss.

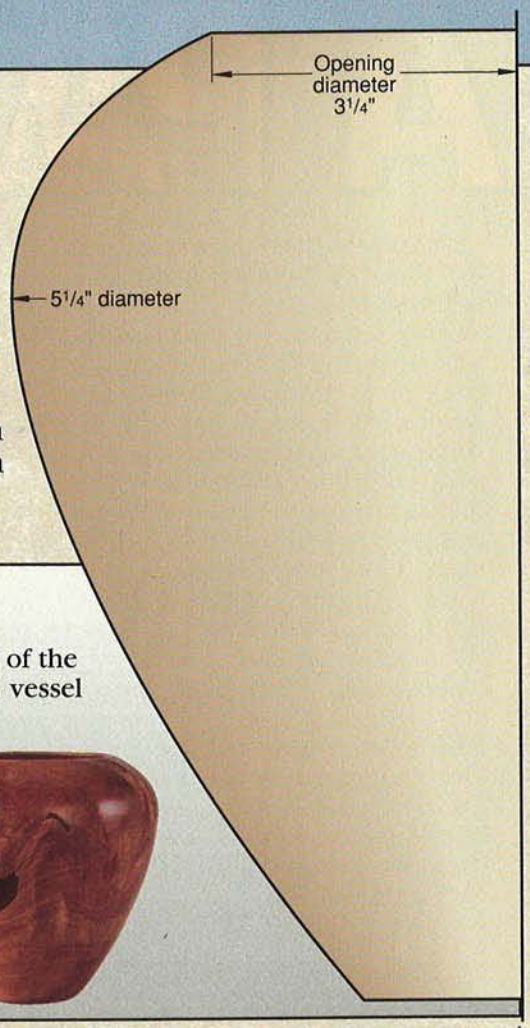
Phil finishes some turnings with Waterlox, a tung-oil product. A few, such as the hackberry seed jar shown *far right* and on *page 68*, receive no finish at all. To emphasize the shape or add depth to a pot, Phil sometimes paints the inside flat black.

Written by Larry Johnston
Photographs: John Hetherington
Illustrations: Kim Downing



Seven Southwest designs

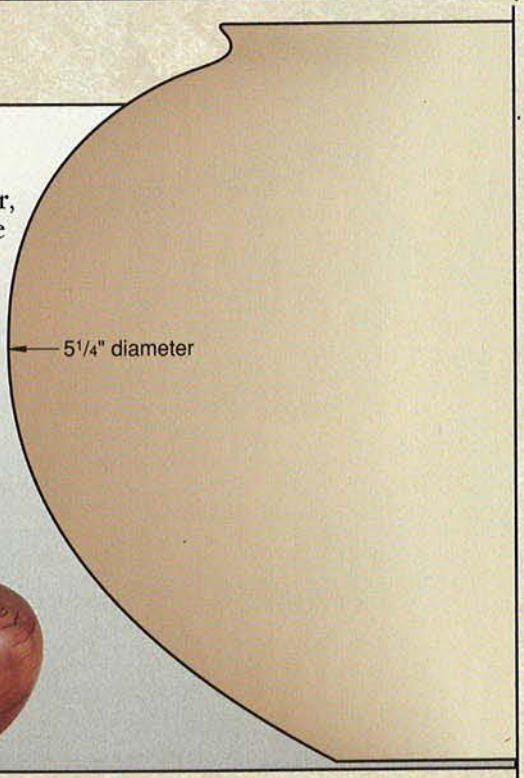
Here's a collection of Southwest designs you can turn yourself. The templates show the actual size that Phil turned, but you can enlarge or reduce them as you prefer.



Water jug

This form, in a style typical of the Casa Grande, represents a vessel most likely used for water storage.

Wood shown:
walnut,
Waterlox finish.



Dry-storage jar

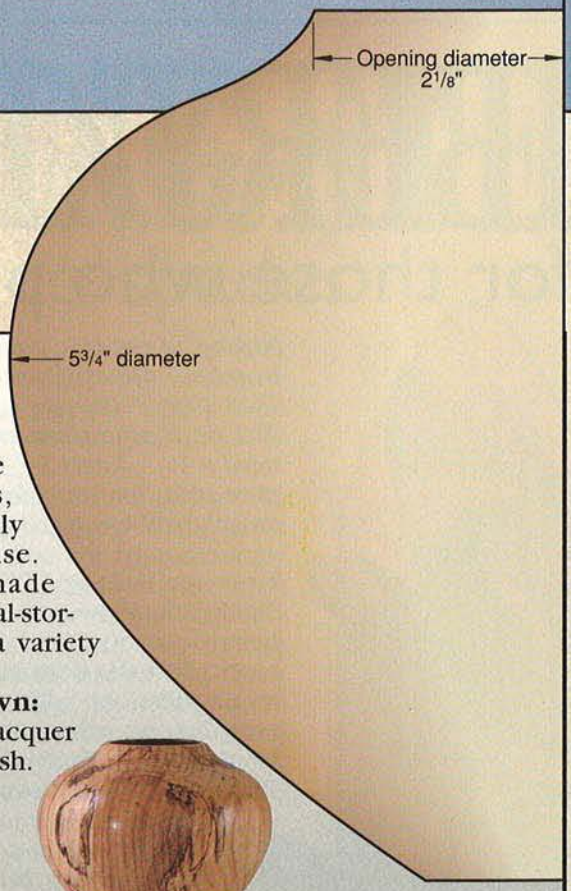
A lipped rim, as on this jar, provided a way to seal the mouth. A hide stretched over the top could be secured with a thong tied around the groove. This shape closely resembles a Zuni drum.

Wood shown:
juniper,
lacquer and wax finish.

Bead pot

This style could have held beads, or practically anything else. Potters made these general-storage jars in a variety of sizes.

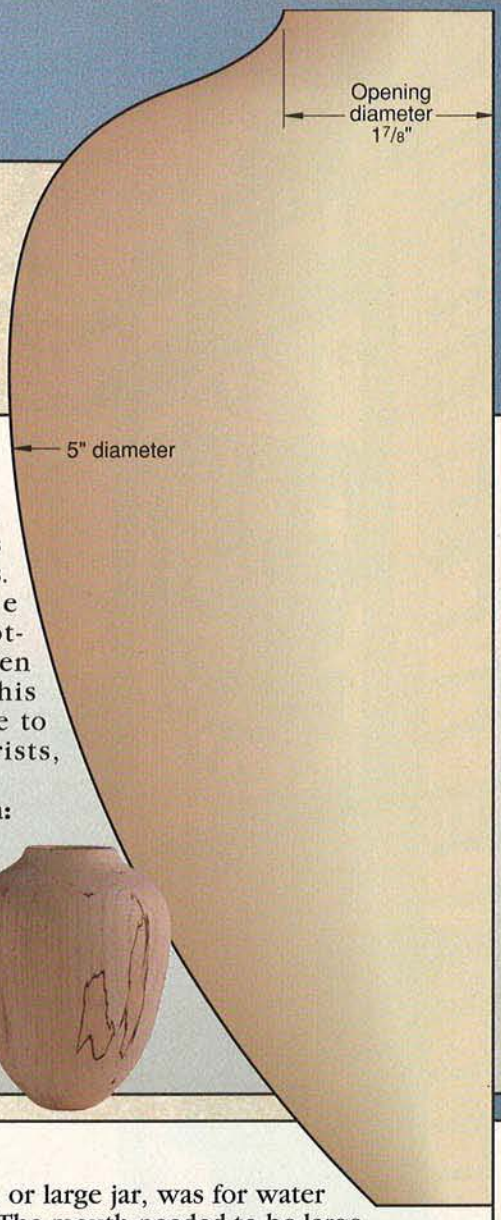
Wood shown: hackberry, lacquer and wax finish.



Seed jar

Tall vessels like this could have served as large seed jars. Native American potters most often produced this style as a vase to sell to tourists, however.

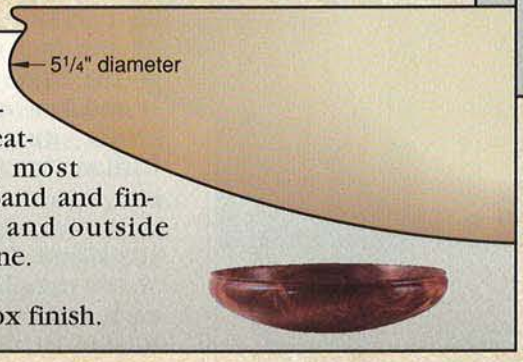
Wood shown: hackberry, no finish.



Dinner bowl

This open design represents the shallow eating bowl found in most Southwest cultures. Sand and finish both the inside and outside when you make this one.

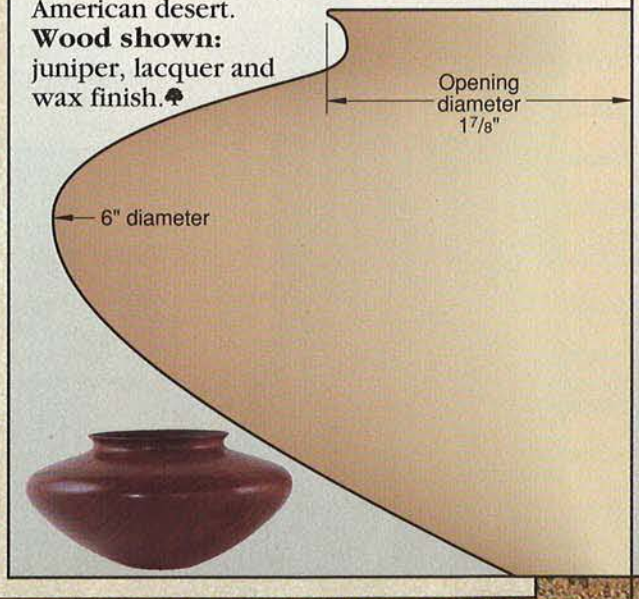
Wood shown: mesquite burl, Waterlox finish.



Olla

The olla, or large jar, was for water storage. The mouth needed to be large enough to dip from, but small enough to reduce losses to evaporation in the arid, American desert.

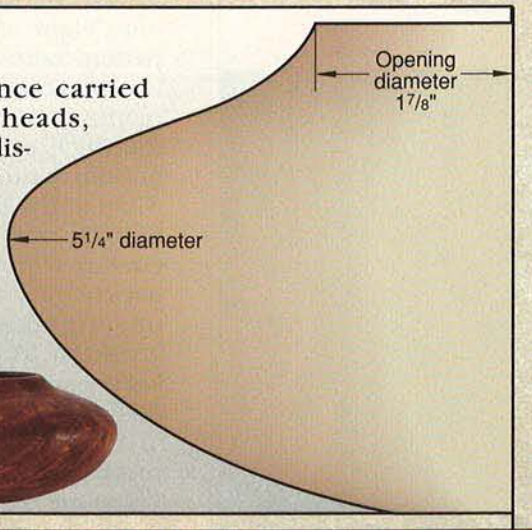
Wood shown: juniper, lacquer and wax finish.



Sikyatki

Native Americans once carried these jars on their heads, hauling water long distances. The flat shape was easy to carry, and the small opening minimized loss of water from splashing out.

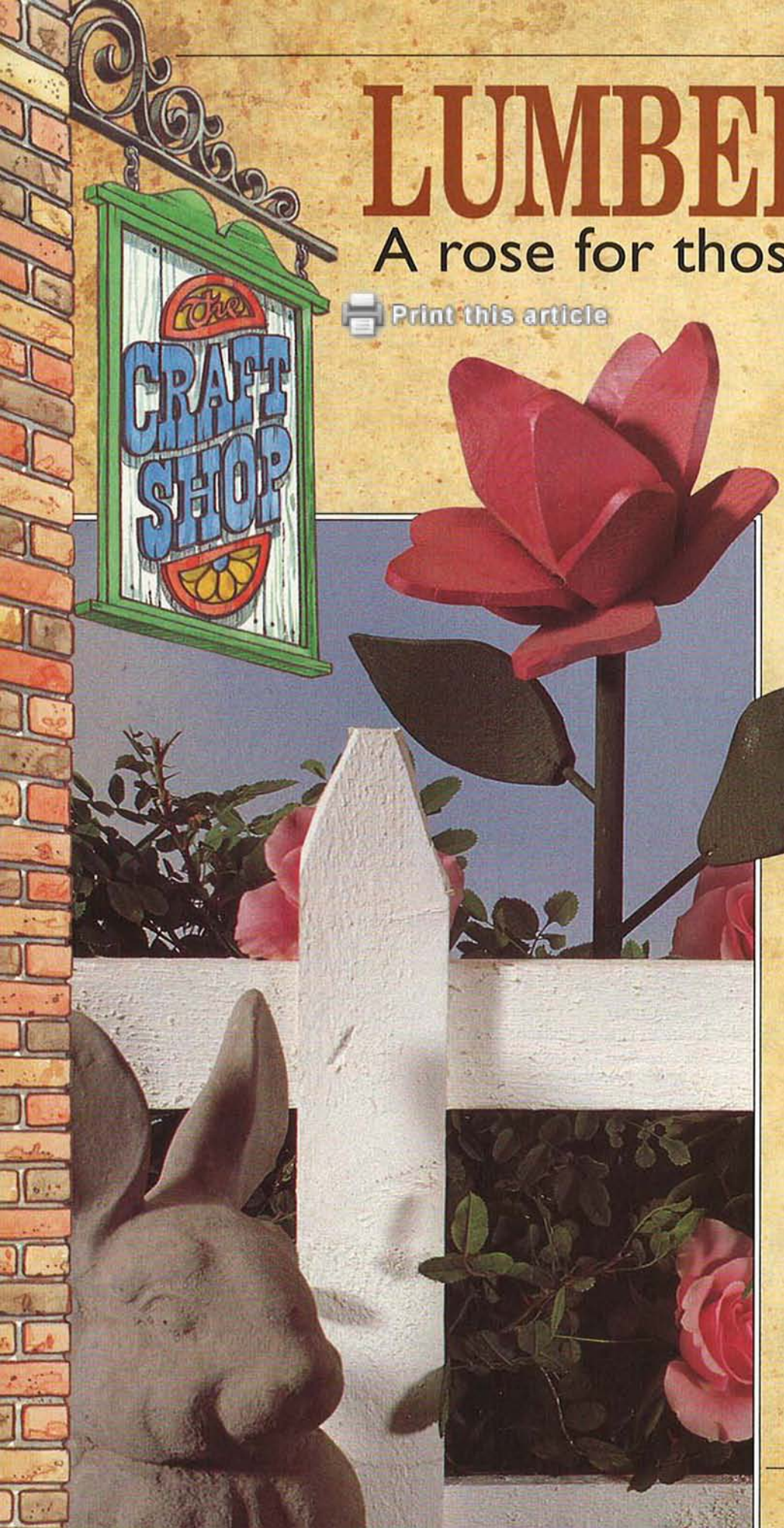
Wood shown: juniper, Waterlox finish.



LUMBERYARD

A rose for those who prefer

Print this article



Note: *Cut the rose parts from two blocks of softwood stock 1½×3½×6" (scraps of standard 2×4 fir or pine work great). You'll need a 5/16" dowel 14" long for the stem and two short lengths of ⅛" dowel for the leaf stems.*

Trace the Full-Sized Petal and Leaf Blank Side View pattern *opposite page* onto one face of one 2×4 block. Butt the bottom of the pattern against one edge of the stock near the end, where shown in the Petal and Leaf Blanks drawing.

Bandsaw or scrollsaw along the pattern line. A bandsaw fitted with a ⅛" blade works great, but you also could use a scrollsaw with a heavy blade, such as a no. 9 (.053×.018" with 11.5 teeth per inch). Saw one line from the edge to the tip, back out, and saw in along the other line.

Now, cut nine more blanks. Rather than tracing the paper pattern repeatedly, simply stand the first cut piece on edge on the stock and draw around it with a sharp pencil or utility knife for each remaining part. You'll need a total of 10 blanks.

Trace the full-sized petal pattern onto eight of the blanks, the leaf pattern onto the other two. Place the patterns on the side of the blank that curves upward from the thick end, with the pattern's bottom at the thick end.

Cut out the petals and leaves. The blank's curvature prevents full contact with the saw table, so saw carefully, particularly in the unsupported area. Rock each blank on its curve as you cut to keep as much of it on the table as possible.

To make the rosebud, rip the remaining 2×4 block to 1½×1½". Trace the pattern onto two adjoin-

LONG-STEM

saws to spades

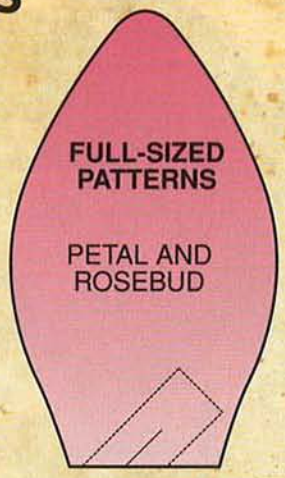
ing faces, as shown in the Rosebud Blank drawing. Scrollsaw or bandsaw one face, then tape the waste back onto the block to saw the other face.

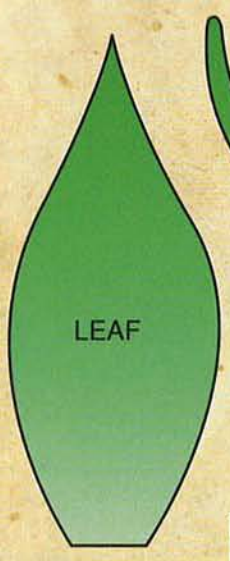
Sand the parts, rounding over the curved edges slightly. Then, select four petals that are approximately the same thickness at the thick end. Refer to the Exploded View drawing, and glue two of the petals together, end to end. Trim the thick ends of the other two to fit against the sides of the glued pair where shown.

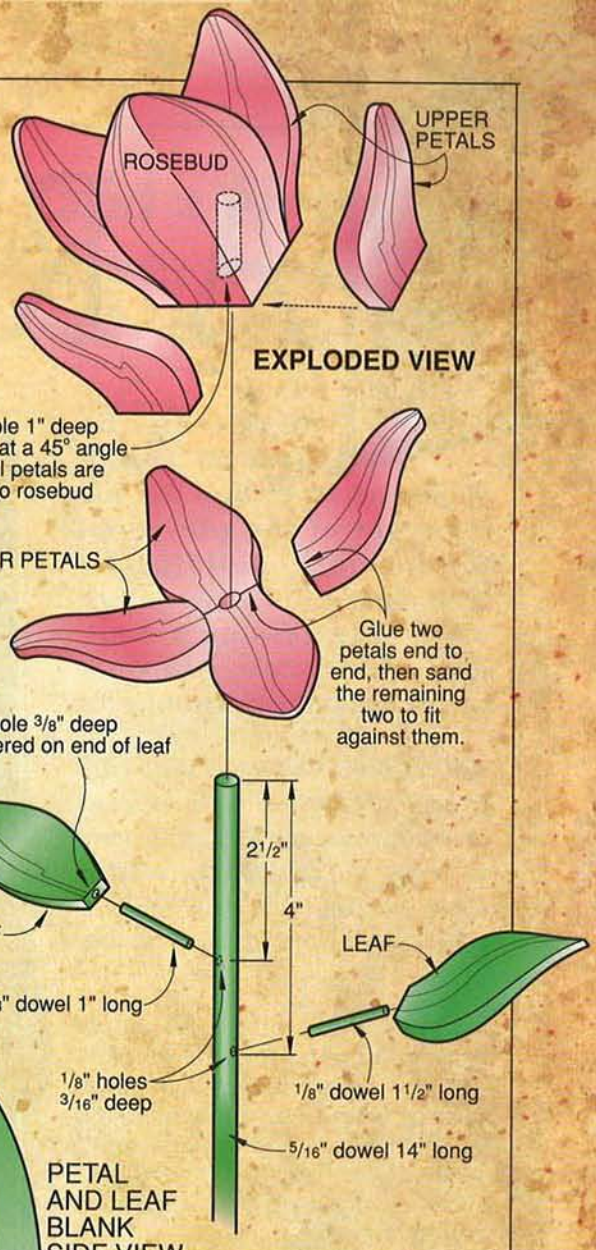
Glue the remaining four petals to the sides of the rosebud where shown. Then, glue the rosebud assembly onto the lower petal assembly. When dry, drill a 5/16" hole at about a 45° angle into the bottom of the rose.

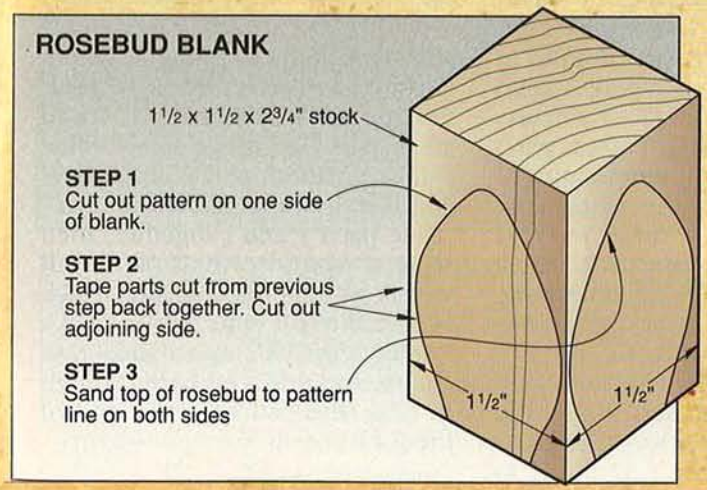
Drill 1/8" holes where shown in the two leaves and the stem. Assemble the leaves to the stem with 1/8" dowels. Glue the top of the stem into the hole in the rose. Paint the bloom with acrylic paint in your favorite rose color (we used metallic pink). Paint the stem and leaves dark green.

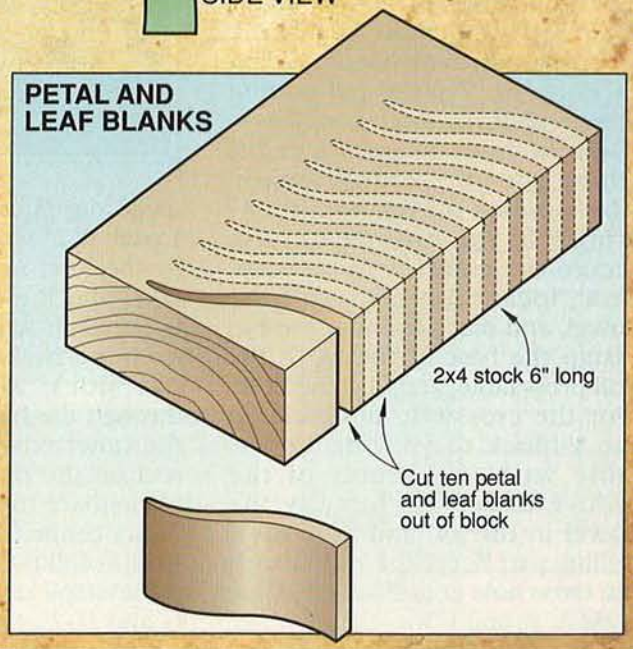
Project Design: Danny Barr
Photograph: John Hetherington
Illustrations: Kim Downing






ROSEBUD
UPPER PETALS
EXPLODED VIEW
5/16" hole 1" deep drilled at a 45° angle after all petals are glued to rosebud
LOWER PETALS
Glue two petals end to end, then sand the remaining two to fit against them.
1/8" hole 3/8" deep centered on end of leaf
LEAF
1/8" dowel 1" long
2 1/2"
4"
LEAF
1/8" holes 3/16" deep
1/8" dowel 1 1/2" long
5/16" dowel 14" long

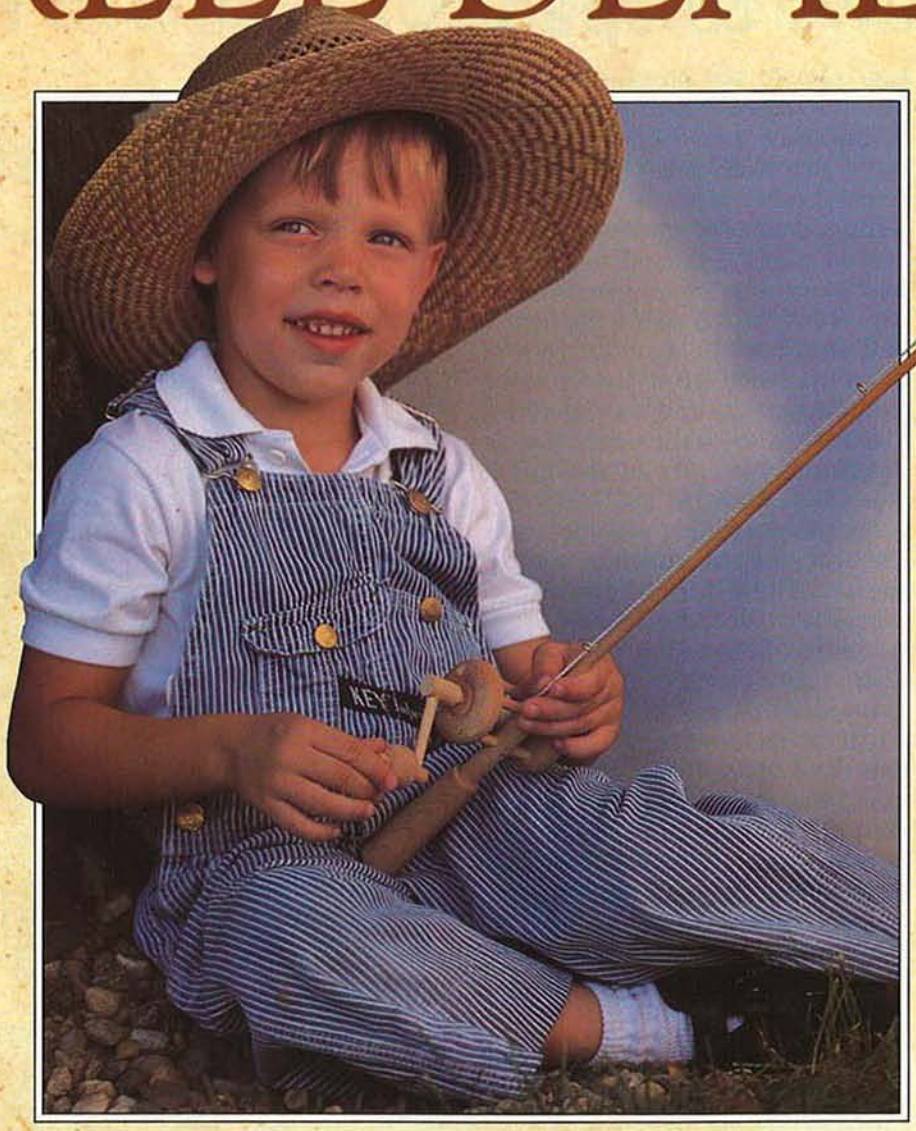

ROSEBUD BLANK
1 1/2 x 1 1/2 x 2 3/4" stock
STEP 1
Cut out pattern on one side of blank.
STEP 2
Tape parts cut from previous step back together. Cut out adjoining side.
STEP 3
Sand top of rosebud to pattern line on both sides
1 1/2"
1 1/2"



Print this article

A REEL DEAL

Here's all the gear a young angler needs to lure the big ones out of the playroom fishin' hole. Building it? Well, that's not much more work than tossing a hook into a cool, clear lake on a sunny Sunday afternoon.



***Note:** Dowel diameters may vary from the nominal size, so select drill bits to match the diameter of your ⅛", ¼", and ½" dowels. Use those bits wherever the instructions call for ⅛", ¼", or ½" holes.*

To build the fishing pole, you'll have to drill into the side of a few dowels (crosswise) and into the end of some (lengthwise). To make those tasks easier and safer, start by building the two jigs shown on *page 84* to use with your drill press.

For the rod, cut parts A, B, and C to length. (We cut the short pieces of dowel by hand, holding them in the V-block and cutting them with a fine-tooth backsaw.)

Drill the holes in parts A and B where shown. To drill lengthwise, position the dowel in the V-groove of the drilling fixture. Secure the dowel with a clamp. Now, locate the center of the dowel, and place it under the bit. Clamp the base of the jig to the drill-press table, and drill the hole.

For the crosswise hole, clamp the V-block to your drill-press table with the center of the groove under the bit. Lay the dowel in the jig, and drill. After drilling part B, cut the end nearest the cross hole at a 45° angle. Glue parts A, B, and C together.

Drill four equally spaced holes in a pair of 2" wheels where shown by the Reel Side detail. Cut parts D, E, and F to length. Glue parts D into one wheel, extending out from the back of the wheel (the flat side). Slide one part D through the hole in part B, install the other wheel, and center the reel on the rod. Glue the assembly in place in part B.

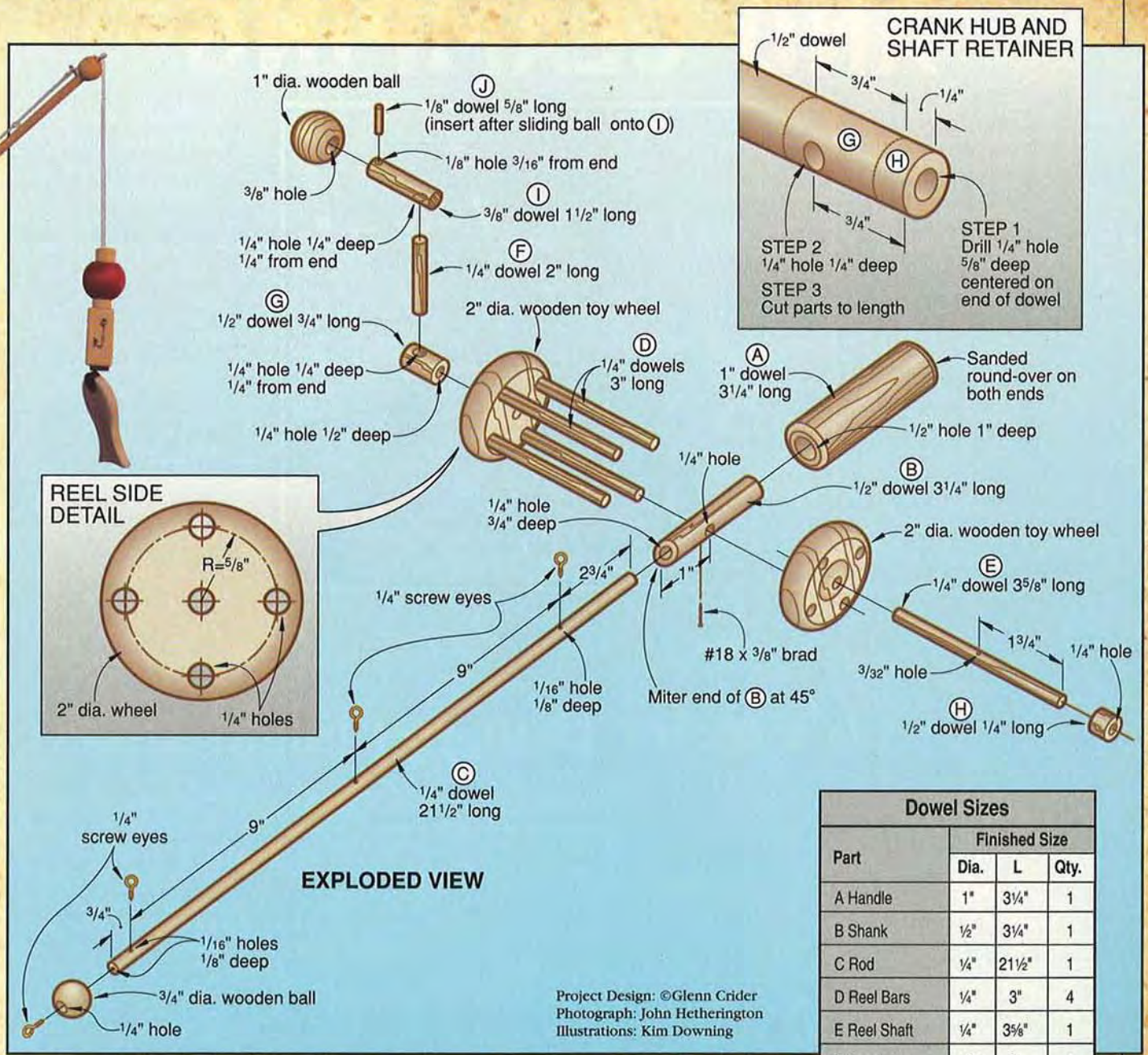
Refer to the Crank Hub and Shaft Retainer drawing, and follow the three steps shown to make parts G and H. Cut parts I, J, and K to size. Drill parts E, I, and K where shown, and assemble the reel. Enlarge the wheel center holes to allow part E to rotate freely. Slide E into position, and glue parts G and H to it, leaving E free to turn.

Glue parts F and I together, then slide a spandrel ball (a 1" ball with a ⅜" hole through it) over I. Secure the ball with part J. Grip a ¾"-diameter ball in a handscrew clamp, and drill a ¼" hole through it. Glue the ball onto the end of the fishing rod.

Continued on page 82

FOR KIDS

Land a whopping "Gee, thanks!" with this tackle



Project Design: ©Glenn Crider
Photograph: John Hetherington
Illustrations: Kim Downing

Dowel Sizes

Part	Finished Size		
	Dia.	L	Qty.
A Handle	1"	3¼"	1
B Shank	½"	3¼"	1
C Rod	¼"	21½"	1
D Reel Bars	¼"	3"	4
E Reel Shaft	¼"	3⅝"	1
F Crank Arm	¼"	2"	1
G* Crank Hub	½"	¾"	1
H* Shaft Retainer	½"	¼"	1
I* Crank Handle	⅜"	1½"	1
J Handle Pin	⅛"	⅝"	1
K Bobber Core	⅜"	1½"	1

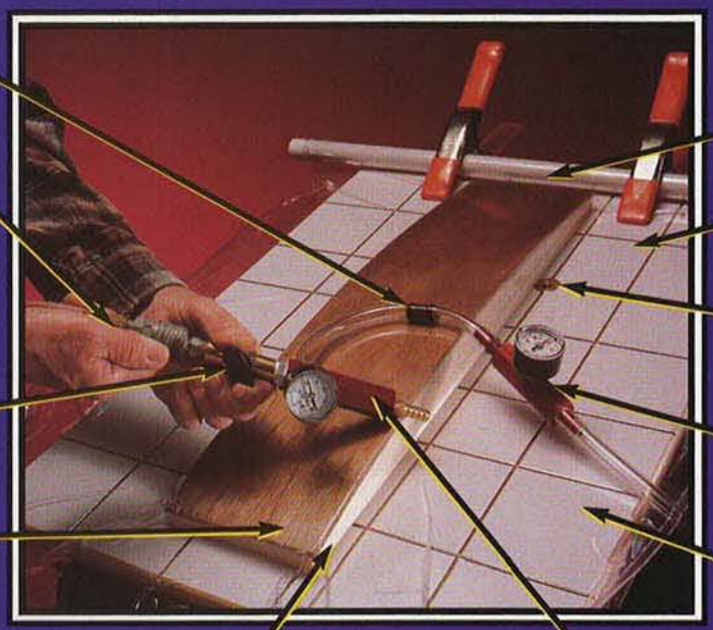
*Start with longer stock, and cut to finished length in accordance with how-to instructions.

Buying Guide

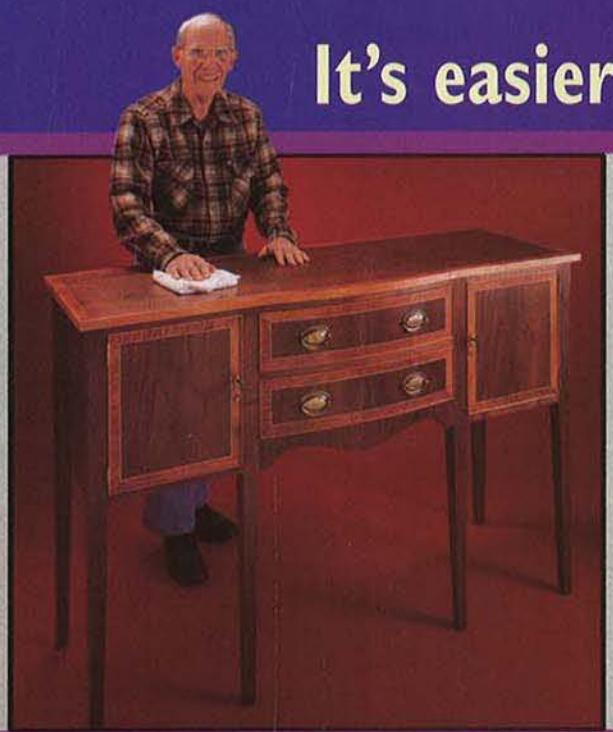
Parts kit. Wheels, spandrel balls, ¾" balls, magnets, screw eyes, and twine for two fishing rods. Order no. 1355 Toy Fishing Rod Hardware Package, $4.95 per kit plus $3.50 per order shipping and handling (MN residents add 6.5% sales tax) from Meisel Hardware Specialties, P.O. Box 70W, Mound, MN 55364-0070. For telephone orders call 800/441-9870

Get great results at minimal cost

VACUUM-VENEERING AND CLAMPING


Check valve (Prevents air from bleeding into bag)
Compressed-air supply hose
On/off valve
⅛" plywood caul (obscures view of veneer)
Substrate
Vacuum pump (venturi)
Baseboard
Vacuum gauge
Stem connector
Clear plastic vacuum bag
Open end of bag wrapped around slotted PVC pipe and clamped

It's easier than you might think



Above: **This simple vacuum-veneering setup costs about $200 and yields perfect results, even with curved workpieces such as this bowed drawer front.**

Left: **Former *WOOD* magazine photographer Bill Hopkins used vacuum-veneering to produce this Hepplewhite-style sideboard.**

Print this article

Like a lot of other people, we used to think that only professional woodworkers could reap the benefits of vacuum-veneering. Were we ever wrong! After trying it for ourselves, and after making the clamping jigs on the following pages, we found the procedures and equipment remarkably simple, and surprisingly affordable. And the results? Fantastic!

Working in a vacuum: how it's done

Vacuum-veneering and clamping systems work on a simple principle: At sea level, the atmosphere applies more than 2,000 pounds of pressure per square foot in all directions. By removing air from one side of a workpiece, the atmosphere places all of its pressure on the opposite side of the workpiece. (The drawing *right* shows this principle in action.)

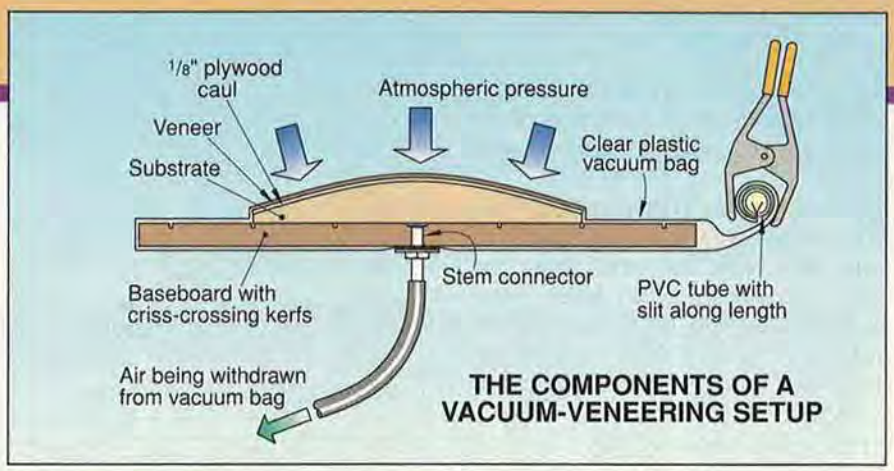
To remove the air, you can choose between electric- and air-powered vacuum pumps. For this article we experimented with an economically priced air-powered version. These units cost as little as $100, including a vacuum pump (often called a venturi), on/off valve, hose, and other basic accessories. They do require a compressor, though, that produces at least two cubic feet per minute (cfm) of air. By contrast, electric-powered pumps cost upwards of $300.

To use a vacuum pump for veneering you'll also need a special vacuum bag. Inside this large, clear-plastic bag you place veneer, adhesive, and a substrate stacked on top of a baseboard with criss-crossing saw kerfs. When you seal the bag and draw the air out of it, atmospheric pressure forces the veneer perfectly flat.

You'll find veneer bags in these approximate sizes: 4×4', 4×8'6", 4×10'6", 4×12', and 6'6"×10'6". You can buy them in vinyl (.020" or .030" thick) or polyurethane (.020" thick) in prices ranging from $85 to $675 each. A .020"-thick vinyl bag, your least expensive option, suits the needs of occasional users.

As you draw air out of the bag, the vacuum gauge acts like a barometer and measures the pressure according to inches of mercury (Hg). The pump will easily pull 25 Hg (about 1,800 pounds per square foot of pressure). Since a small amount of air leaks into the bag on its closed end and through any small pinholes, you need to check the pressure gauge every now and then. When it drops to 15 Hg, you need to bring the pressure back up by running more compressed air through the venturi.

If you would rather not bother checking the pressure from time to time, you can buy automatic controllers that maintain pressure by switching the pump on and off. This feature will add several hundred dollars to your investment, though. We suggest you add this device later if needed.



THE COMPONENTS OF A VACUUM-VENEERING SETUP

One man's success story with vacuum veneering

Bill Hopkins (the proud guy in the photo *left*) used to spend a lot of time on the other side of the camera, taking pictures for *WOOD*® magazine. Since retiring from his photography business a few years ago, Bill still finds time to stop by and see us. Only these days, he usually has woodworking, not photography, on his mind.

On one recent visit, Bill was planning the Hepplewhite-style sideboard he's posing with. Although he had never tried vacuum veneering, he thought it might be just the ticket for his new project. As he told us: "In my previous veneering attempts, it seems I always ended up with a troublesome bubble I couldn't quite roll down flat. And, clamping the veneer to the bowed drawer fronts on this project could get real tricky." Since we had a vacuum-veneering setup on hand, we asked Bill to give it a try and get back to us with his findings.

Well, the results speak for themselves: Bill's sideboard turned out fantastically. Here's what he had to say: "I used some bumpy veneer, but the vacuum press layed it dead flat. By carefully closing the bag, I was able to hold the vacuum fairly well with a loss of less than 3 Hg over a period of an hour or so. While it would have been nice to have the automatic controller, I didn't find this piece of equipment necessary for doing excellent work. I'm sold on using a vacuum setup for veneering."

Five handy clamping jigs

Although manufacturers tell us that vacuum systems get their greatest use in veneering, you'll also find them indispensable for certain clamping chores. On the next page, we've illustrated some of the possibilities. To learn about more applications, such as vacuum featherboards, right-angle clamps, and straightedges, contact the manufacturers listed at the end of this article.

You can make our jigs from any tight-grained, ¾"-thick wood such as hard maple. When you need a flat, inexpensive surface, plywood will do. The manufacturers in the Buying Guide on the next page will outfit you with the necessary fittings, vacuum tape, and other

Continued

accessories. We found both suppliers easy to reach and more than willing to dispense advice.

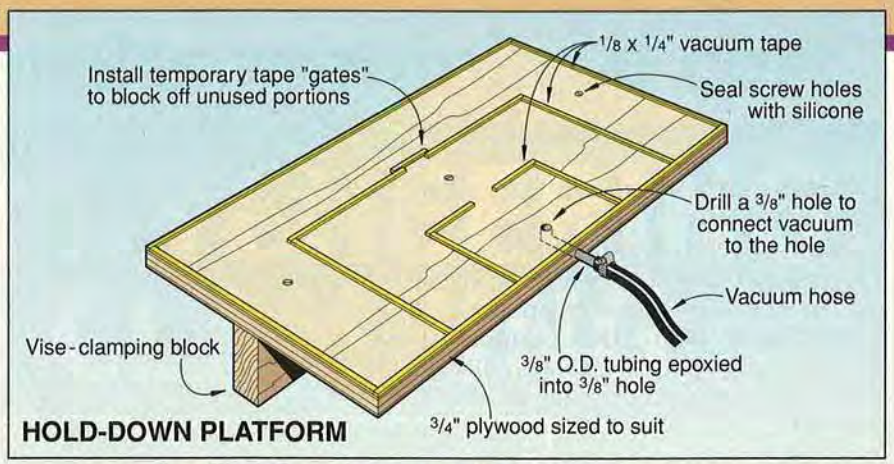
•Hold-down platform. With this fixture clamped securely in your vise, you can sand, rout, or carve workpieces without cumbersome clamps. By using the vacuum-tape "gates," you can control the area of suction for various-size workpieces.

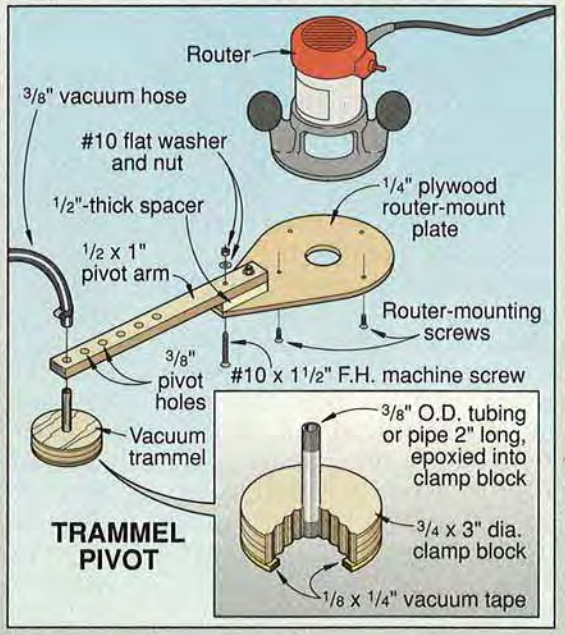
•Trammel pivot. Conventional trammel pivots require you to drive a nail or drill a hole into the center of your workpiece, but this version leaves your project unscathed. Possible applications include cutting circles or molding their edges.

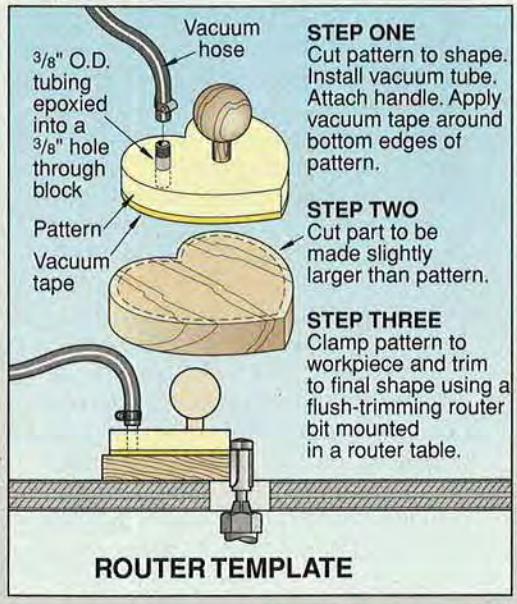
•Bandsaw circle-cutting jig. If you would rather cut your circles with a bandsaw, here's a super setup for getting the job done. The same jig works with a stationary sander for sanding perfect circles to shape.

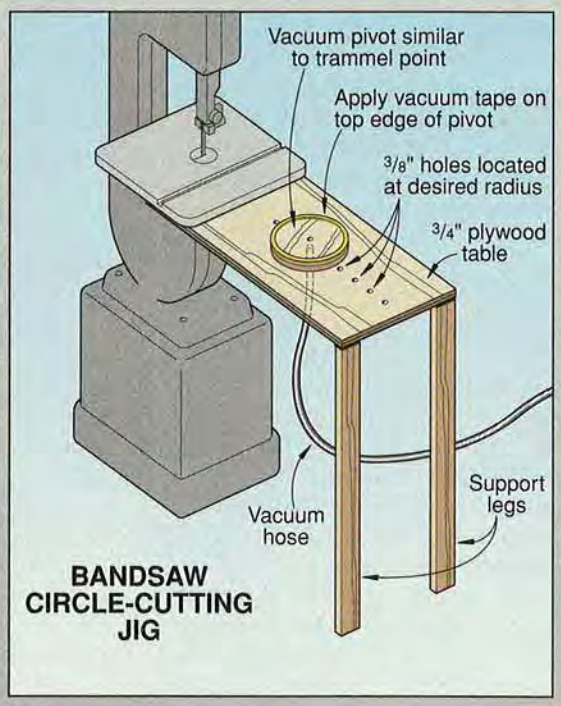
•Pushblock. We designed this handy helper for jointing tasks, but smaller versions work great for holding tiny pieces for router-table operations. You can use this basic idea to customize pushblocks for all sorts of machining tasks.

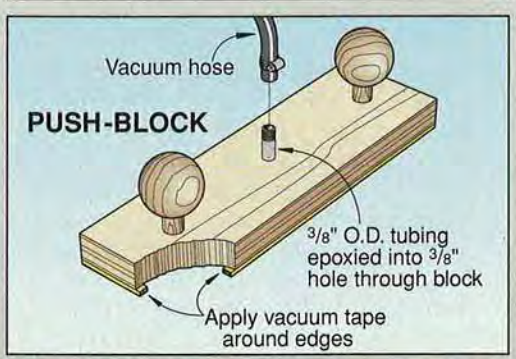
•Router template. You'll really appreciate this little device if you need to produce quantities of simple shapes. The reason: You'll spend little time at the bandsaw or scrollsaw if you cut the objects to rough shape, then rout them to finished shape with this jig and a flush-trimming router bit.


1/8 x 1/4" vacuum tape
Install temporary tape "gates" to block off unused portions
Seal screw holes with silicone
Drill a 3/8" hole to connect vacuum to the hole
Vacuum hose
Vise-clamping block
3/8" O.D. tubing epoxied into 3/8" hole
3/4" plywood sized to suit
HOLD-DOWN PLATFORM


Router
3/8" vacuum hose
#10 flat washer and nut
1/2"-thick spacer
1/4" plywood router-mount plate
1/2 x 1" pivot arm
Router-mounting screws
3/8" pivot holes
#10 x 1 1/2" F.H. machine screw
Vacuum trammel
3/8" O.D. tubing or pipe 2" long, epoxied into clamp block
3/4 x 3" dia. clamp block
1/8 x 1/4" vacuum tape
TRAMMEL PIVOT


Vacuum hose
3/8" O.D. tubing epoxied into a 3/8" hole through block
Pattern
Vacuum tape
STEP ONE
Cut pattern to shape. Install vacuum tube. Attach handle. Apply vacuum tape around bottom edges of pattern.
STEP TWO
Cut part to be made slightly larger than pattern.
STEP THREE
Clamp pattern to workpiece and trim to final shape using a flush-trimming router bit mounted in a router table.
ROUTER TEMPLATE


Vacuum pivot similar to trammel point
Apply vacuum tape on top edge of pivot
3/8" holes located at desired radius
3/4" plywood table
Support legs
Vacuum hose
BANDSAW CIRCLE-CUTTING JIG



Buying Guide

For more information on vacuum-veneering and clamping, contact these manufacturers:

•Quality Vakuum Products, 32 Longmeadow Rd., Lincoln, MA 01773. Call 800/547-5484 or 617/259-1490.

•Vacuum Pressing Systems, 553 River Rd., Brunswick, ME 04011. Call 207/725-0932.

HOME PLANNERS LIBRARY
1-800-322-6797

SAVE OVER 40%

BOOKS & BLUEPRINTS FOR YOUR NEW HOME

COUNTRY

1 200 country designs from classic to contemporary by 7 winning designers.
224 pages $6.95

BUDGET-SMART

2 200 efficient plans from 7 top designers, that you can really afford to build!
224 pages $6.95

MOVE-UP

3 200 stylish designs for today's growing families from 7 hot designers.
224 pages $6.95

NARROW-LOT

4 200 unique homes less than 60' wide from 7 designers. Up to 3,000 square feet.
224 pages $6.95

ENCYCLOPEDIA

5 500 exceptional plans for all styles and budgets–the best book of its kind!
352 pages $9.95

DECKS

6 25 outstanding single and multi-level deck plans you can build or contract yourself.
112 pages $7.95

LANDSCAPES

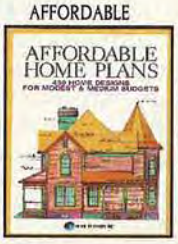
7 40 fabulous front yards.
208 pages $12.95

8 40 beautiful back yards.
160 pages $12.95

MOST POPULAR

9 400 of our customers' favorite, proven plans in a variety of styles.
272 pages $9.95

AFFORDABLE



10 403 cost-saving plans specially selected for modest to medium building budgets.
320 pages $8.95

LUXURY

11 154 fine luxury plans–loaded with luscious amenities!
192 pages $14.95

ONE-STORY

12 470 designs for all lifestyles. 860 to 5,400 square feet.
384 pages $8.95

TWO-STORY

13 478 designs for one-and-a-half and two stories. 1,200 to 7,200 square feet.
416 pages $8.95

VACATION

14 258 designs for recreation, retirement and leisure.
256 pages $7.95

MULTI-LEVEL

15 312 designs for split-levels, bi-levels, multi-levels and walkouts.
320 pages $6.95

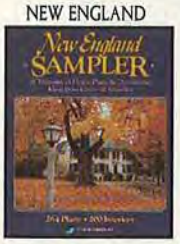
CONTEMPORARY

16 Revised! 341 sleek, modern designs featuring open floor planning.
304 pages $9.95

TRADITIONAL

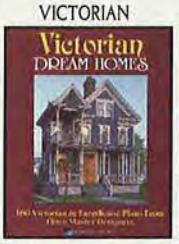
17 Revised! 403 elegant, beautiful homes in classic styles with today's amenities.
304 pages $9.95

NEW ENGLAND



18 260 home plans and 200 decorating ideas from Colonial America.
384 pages $14.95

VICTORIAN



19 160 striking Victorian and Farmhouse designs from three leading designers.
192 pages $12.95

WESTERN

20 215 designs that capture the spirit and diversity of the Western lifestyle.
208 pages $8.95

EMPTY-NESTER

21 200 exciting plans for empty-nesters, retirees and childless couples.
224 pages $6.95

STARTER

22 200 easy-to-build plans for starter and low-budget houses.
224 pages $6.95

Yes!

PLEASE SEND ME THE DESIGN BOOKS I'VE CIRCLED:

1 2 3 4 5 6 7
8 9 10 11 12 13 14
15 16 17 18 19 20 21 22

Name_____

Address_____

City_____

State_____ Zip_____

MAIL TO:
HOME PLANNERS, INC.
DEPT. BK., 3275 WEST INA ROAD, SUITE 110, TUCSON, AZ. 85741

NOTE!
For maximum savings, order several books at once!
Order any 3 books—DEDUCT $3
Order any 4 books—DEDUCT $5
Order any 5 books—DEDUCT $10
Order 6 or more books—DEDUCT $15
Order all 22 books pay—JUST $125

Total Amount.....$_____
Sales Tax (AZ 5% MI 4%).....$_____
New Design Portfolio.....$ FREE
Postage & Handling.....$ 3.00
Total Enclosed.....$_____
Please remit in U.S. funds

AVAILABLE AT LOCAL BOOKSTORES OR ORDER BY CREDIT CARD
CALL TOLL-FREE 1-800-322-6797

FREE!

Limited Offer!
With any purchase, receive our latest *New Design Portfolio* absolutely free!

WMM45

WOOD-DRYING TIPS

Print this article

Contrary to what you might think—and what we thought—air-drying green lumber before putting it in the solar kiln on *page 44* won't speed up the drying process. Says Eugene Wengert of the University of Wisconsin, "You'll only be ruining the prime on the pump, so to speak. Wood that's first air-dried takes as long to kiln-dry to the final moisture content of about six percent as green wood does." That's because after the free water that fills the cavities of the green-wood cells evaporates, the moisture remaining in the cell walls becomes bound water. And like a damp cloth, only low-humidity heat can dry it further.

Here's more great tips

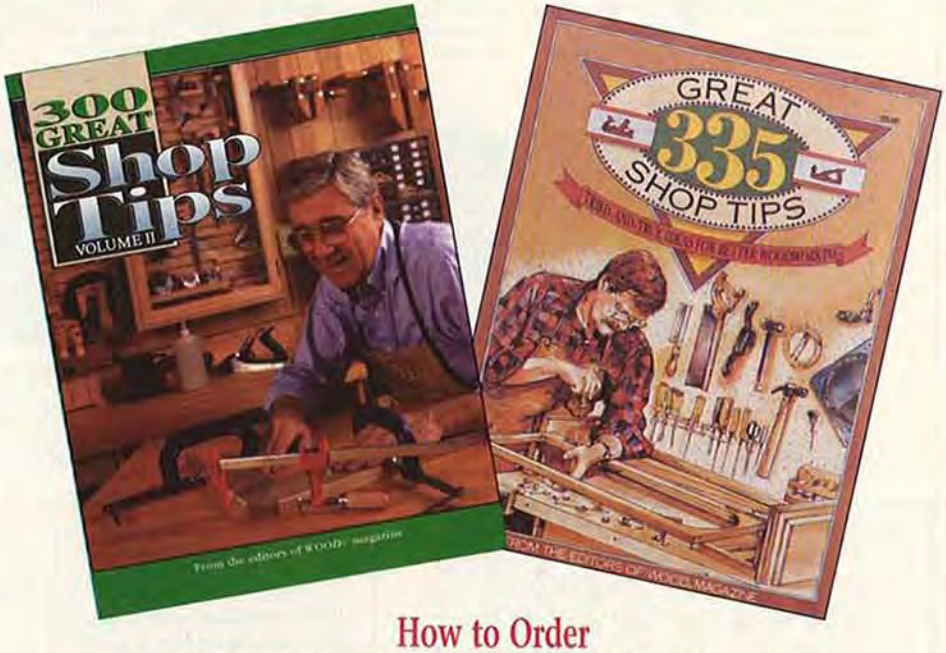
- For wood to dry in a solar kiln, you should try to maintain an interior temperature that's a minimum of 50° F. Ideally, the kiln temperature should read about 30° higher than outdoor temperature. Fans help hold this temperature difference in hot weather.
- Wood can dry too fast. All hardwood species have a maximum moisture content that they can lose per day without suffering damage (their drying rate). Oak, for instance, can't lose more than 2.5 percent. Walnut, on the other hand, can lose as much as 8.5 percent. With a mixed load, dry to the wood with the slowest drying rate, like oak. Let other species go along for the ride.
- Partially filling a kiln may result in the green wood drying too rapidly and developing stress. The solar kiln design allows for drying a full load to the slowest rate. (For a shorter stack, extend the black plastic baffle down to the top of the wood pile.)
- Never introduce a supplementary heat source. Too much heat can cause defects such as case hardening, which hardens the wood's surface only.
- The kiln must cool off at night. Condensation that collects on the walls at night (with the fans off) reduces any potential stress in the drying wood.
- Regulate the drying rate with vents. In some cases, you may have to keep vents closed at first, then open them for awhile, then close them again to control moisture loss.

Although there's a lot to learn at first about kiln-drying green wood, the effort's economically worthwhile. And if you're in the woodworking business, you can depreciate the solar kiln's cost for tax purposes because it's considered equipment (consult with your tax advisor).

GREAT SHOP TIPS

LEARN THE BEST SHOP TIPS USED BY THE EXPERTS AT BETTER HOMES AND GARDENS® WOOD® MAGAZINE.

Solve those pesky problems that slow down your woodworking projects or result in ruined materials. These books are bursting with the best tips from the popular ***Better Homes and Gardens WOOD magazine*** *column "TIPS FROM YOUR SHOP (AND OURS),"* and show you how to make shop projects better, faster, safer, and easier.



How to Order

To order "335 Great Shop Tips I" or "300 Great Shop Tips Volume II," (please specify) send your name, daytime phone number and address, along with $9.95 plus $2.50 S&H ($12.45 total) for 1 book, or $15.00 plus $2.50 S&H ($17.50 total) for both to:

WOOD® Shop Tips Books

P.O. Box 9255, Dept. WD-27 • Des Moines, IA 50306

Or call **1-800-572-9350**

7:00 a.m. – 9:00 p.m. CST.

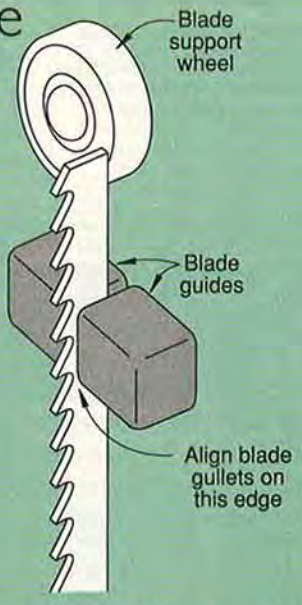
Visa, MasterCard accepted. 100% money-back guarantee if not completely satisfied.

Continued from page 37

What woodworkers need to know about...

BANDSAW BLADES

Tips for getting the most from your blade



•**Better cornering.** For a blade that takes tight curves smoothly, round its back corners with a coarse whetstone. Many dealers sell a dry stone mounted on a handle—called a blade-tuning stone—designed especially to do this.

•**Don't attempt re-entry.** If you replace a blade in the midst of a cut, don't saw into the old kerf with the new blade. That's a sure way to dull the new blade prematurely. Instead, turn the work around and start at the other end.

•**Straighten up and cut right.** For accurate cutting, you must adjust the tension and blade guides correctly.
Here's how we do it in three simple steps:
1. Set the blade tension in accordance with your saw's instruction manual.
2. Adjust the tracking to bring the bottoms of the blade gullets into line with the front of the saw's guide pins or blocks (see illustration *above right*).
3. With the saw running, carefully slide the blade support toward the back of the blade. When the blade rotates the wheel, slide the support away from the blade just a smidgen so the free-running blade won't rotate the guide wheel. Tighten the setting.

•**Blades that won't cut straight.** A blade that continually tracks off a cutting line in the same direction may be dull on one side. The blade will lead toward the sharper side. The only cure: sharpen the blade or install a new one on the saw.

Where to buy them

Can't find the blade you want locally? Try these mail-order dealers for a wide variety of bandsaw blades:

Garrett Wade Co.
212/807-1155

Trend-lines, Inc.
800/877-7899

Woodcraft
800/535-4482

Woodworker's Supply, Inc.
800/645-9292

Note: Manufacturers' specific recommendations for use of their products always take precedence over general tips.

Written by Larry Johnston Illustrations: Kim Downing

FREE WOODWORKING CATALOG

RBI, for the Very Best Value & Quality in Precision Woodworking Equipment.
- HAWK Precision Scroll Saws
- 4 *in* 1 Woodplaners
- Accessories
- Books and much, much more.

Call 1-800-487-2623, Dept. D94

rbindustries
The American Tool Manufacturer
1801 Vine Street • Harrisonville, MO 64701

Van Dyke's

Presents a Catalog with supplies for upholstery, antique restoration, wood working, caning, brass hardware, carvings and many related trades!

VAN DYKE SUPPLY COMPANY · SUPPLIES FOR CREATIVE ARTS AND TRADES ·

40 Years in Creative Arts & Trades

Many Hard-To-Find Items!

SEND $1.00 FOR CATALOG TO:
VAN DYKE'S RESTORERS
Dept. D55, P.O. Box 278, Woonsocket, SD 57385

Anderson™ BEDROOM ORGANIZER

FITS UNDER BOX SPRING AND MATTRESS
DUSTPROOF UNDERBED DRESSER
SOLID WOOD FACTORY DIRECT SHIPS UPS
REPLACES BED FRAME
CEDAR CLOTHES PROTECTORS
6 FT. LONG DRAWER
7 to 16 DRAWERS
SELF CLOSING DOORS

PUT A DRESSER UNDER ANY BED

FREE CATALOG 1-800-782-4825

A BUILDING THAT CAN DO ANYTHING!

SAVE UP TO 45%

Buy Factory Direct. 20 x 32 • 25 x 48
Build it yourself! 35 x 56 • 50 x124

800-888-4606 STEELMASTER

SAVE MONEY!
KILN DRY LUMBER
MAKE MONEY!
Kiln Dry for others.
As the nation's largest manufacturer of dehumidification Dry Kilns, we can supply you with the same type equipment used by many of the major firms.
nyle DRY KILN SYSTEMS
1-800-777-NYLE 207-989-4335
Nyle Standard Dryers, Inc.
P.O. Box 1107, Bangor, Maine 04402

WOOD TOY
★Patterns
★Parts
★Wheels
★Many New Patterns to Choose from.
★Executive toys
SEND $1.00 FOR NEW CATALOG
toys and joys
Box 628 w Lynden, Wash. 98264

OWN A FURNITURE RESTORATION BUSINESS
Perfect 2nd Career
Make $200-$2,000 a day! Unlimited market; turn-key business. Free workshops. Set-Up Shop for $2,999-$9,999! Part-time or full-time. Great for men, women, families.
Make Molds*Veneer*Resilver Strip*Repair*Refinish
Business Preview Video $8.95 - Catalog $2.00
MINUTEMAN, INC., Ste. 17
Box 8, Waterloo, WI 53594
1-800-733-1776

BOSCH
ROUTER BITS & SHAPER CUTTERS
SAVE 30% on any mix of 6 bits or cutters
SUPER SAVER SPECIAL
1/4" STRAIGHT BIT
85250M
1/4" SHANK, CARBIDE TIP, 2 FLUTE, 7/8" CUT LENGTH
$7.25
List $12.90
Add $5 Shipping & Handling to each order
For catalog or to order
1-800-423-2450
WOODWORKERS Source
5402 S. 40th Street • Phoenix, AZ 85040

Wood-Mizer®
World's Largest Manufacturer of Portable Sawmills
Models from $6995!*
Own a Sawmill!
1-800-553-0219
32-Page Full-Color Catalog $2.00
Business Profitability Booklet $2.00
66-Minute Demonstration Video $10.00
Mastercard or Visa Accepted
*Shown with optional trailer
Wood-Mizer Products, Inc.
8180 West 10th Street, Dept. 9082
Indianapolis, IN 46214-2400

FREE BROCHURE!
★THE WOODWORKING SHOWS★
machinery • tools • supplies
VISIT THE SHOW NEAR YOU!
•Baltimore •Charlotte •Chicago •Cincinnati •Columbus •Connecticut
•Delaware Valley •Denver •Indianapolis •Milwaukee •No. California •Pittsburgh
•Portland •Seattle •So. California •St. Louis •Washington, D.C. •plus others!
Call for free brochure
Monday - Friday 8:30 am - 5 pm Pacific Time
1-800/826-8257 or 310/477-8521

YOU DO HAVE A CHOICE!!
A TABLE TOP FULL OF GROOVES...OR A DOYEL RADIAL ARM SAW FENCE SYSTEM WHICH CUTS ANGLES WITH ONLY 1 SAW GROOVE
...The miter fence adjusts 0-47° with easy to read 1/4° accuracy
...Quick adjustable ruled cut-off feature
...Instantly replaces wood fences up to 44"
...Rugged tempered aluminum construction
MADE IN U.S.A.
ONLY $111.50
ADD $6.50 S & H
CA RESIDENTS ADD $8.64 (7¾% TAX)
SORRY, NO C.O.D.'S
SEND CHECK OR MONEY ORDER TO:
F. L. DOYEL INC.
P.O. BOX 315 DEPT. D
YORBA LINDA, CA 92686-0315 • (714) 524-3255
MONEY BACK GUARANTEE

DELMHORST MODEL J-88
WOOD MOISTURE METER
INSURE THE QUALITY OF EVERY PROJECT
VALUE PRICED AT $110
Easy to read LED Display indicates 10 ranges of Moisture Content between 6% and 20%.
• 3yr. warranty •Complete with carrying case, batteries, and pins.
•Delmhorst offers over 45 years of experience and service second to none!
CALL TOLL-FREE: (800) 222-0638
NEW JERSEY: (201) 334-2557
DELMHORST INSTRUMENT CO.
51 Indian Lane East, Dept. 931, Towaco, NJ 07082

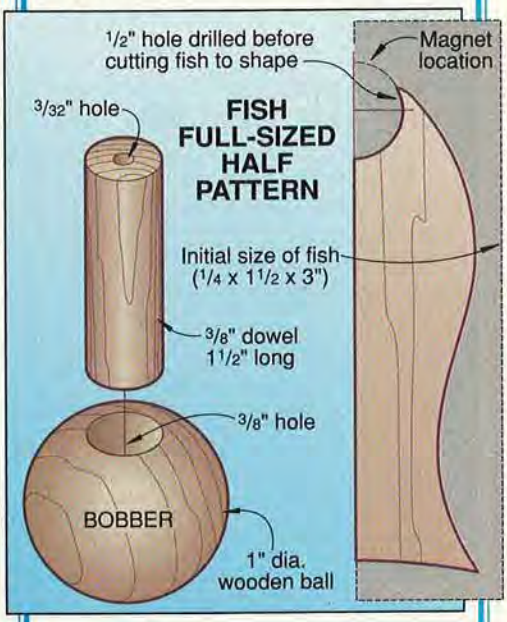
FISHING REEL

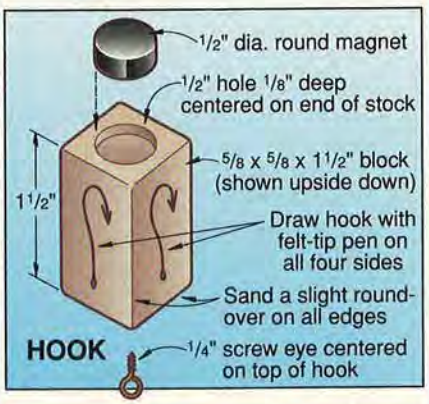
Continued from page 75

Assemble the bobber and hook, referring to the drawings *below*. Epoxy the magnet into the hook. With a marking pen draw a hook on each side of the hook block. Paint the bobber ball red.

Scrollsaw several fish from ¼"-thick stock. Glue a magnet into each where shown. Finish the fish and the rod as desired.

Install four small screw eyes, three spaced evenly along the rod and one on the end where shown. String the rod with nylon or cotton twine about 1/16" in diameter, passing through the screw-eye guides. Tie one end through the hole on the reel shaft. Thread the other end through the hole in the bobber, tie a knot about 1" from the end, then tie the free end to the screw eye in the hook.


1/2" hole drilled before cutting fish to shape
Magnet location
3/32" hole
FISH FULL-SIZED HALF PATTERN
Initial size of fish (1/4 x 1 1/2 x 3")
3/8" dowel 1 1/2" long
3/8" hole
BOBBER
1" dia. wooden ball


1/2" dia. round magnet
1/2" hole 1/8" deep centered on end of stock
5/8 x 5/8 x 1 1/2" block (shown upside down)
1 1/2"
Draw hook with felt-tip pen on all four sides
Sand a slight round-over on all edges
HOOK
1/4" screw eye centered on top of hook

DOOR-PANEL OPTIONS

Print this article

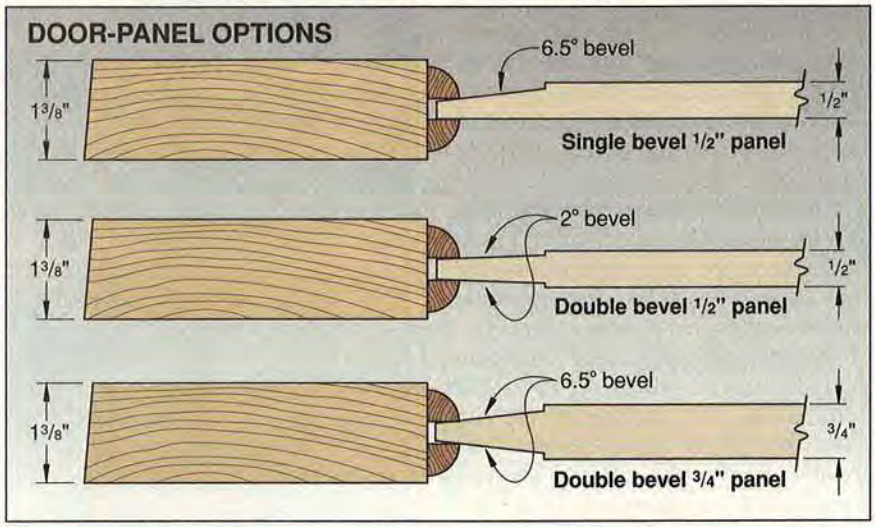
Different styles for different needs

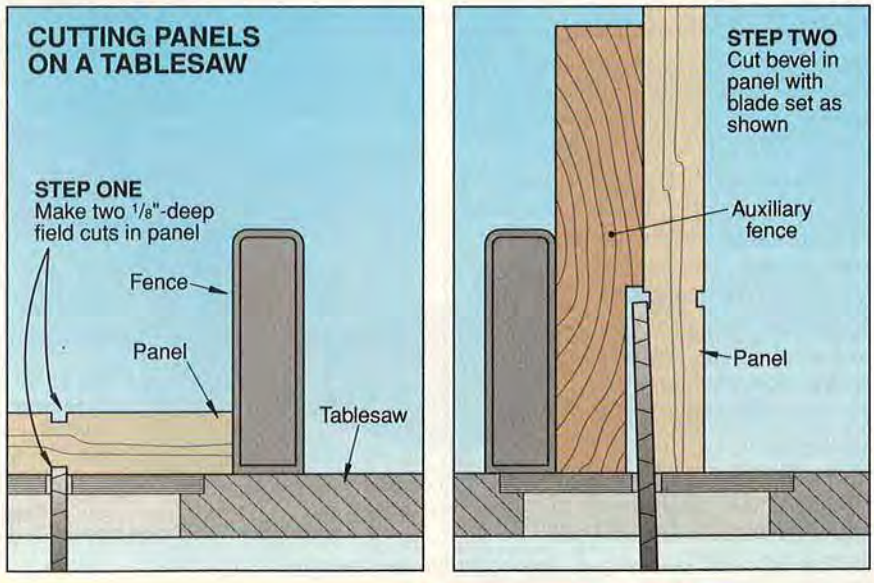
Traditional door styles employ a raised panel within a frame, but there are several options you can explore other than the 1" panel we used. You can make the door panels ¾" or ½" thick and still maintain a bevel on the edges.

By making the panels thinner you reduce the weight of the door a bit and save a little money too. You can also make the panels flat on one, or both sides. Closet doors, for example, don't need a bevel on the side that nobody sees. Thinner panels, however, result in shallower bevels and don't impart the same massive look as do the deeper shadow lines of thicker panels.

If you don't have a panel-raising router bit to cut the bevel profile you want, set up your tablesaw to do the cutting as shown in the two drawings *below*. Whatever panel style you choose, just be sure to leave a ⅜"-thick outer edge on your panel to fit into the groove created by the molding.

Illustrations : Jim Downing





WIN A FREE HEGNER SCROLL SAW

After fifteen years of leadership, HEGNER Precision Saws are still the #1 choice! Now you can win a HEGNER... absolutely FREE! We will also send you our catalog, at no cost or obligation. Call or write today!

1•302•322•2226

ADVANCED MACHINERY IMPORTS, LTD.
P.O. Box 312, Dept. 598 New Castle, DE 19720

Veneering- Video & Equipment

See Article pg 76

See how it's done, the equipment used and the techniques to easily make & veneer fine furniture. 78 min. packed full of information. If you are a serious or professional woodworker, this video is a must. Don't delay.

Special Price $ 19.95 + 4 S&H reg $33.95

Includes brochure & price list on equipment.

CALL 1-800-547-5484

Quality VAKuum 43 Bradford St Concord MA 01742

Quality
MECHANISMS
For Making
WOODEN BARREL

- Pens
- Pencils
- Roller Balls
- Fountain Pens

plus other related items.

Wholesale/Retail

Call or Write:

The Berea Hard Woods Co.
6367 Eastland Rd. Brookpark, Ohio 44142
216-234-7949 *Master Card/Visa*

The Japan Woodworker's Catalog is . . .

loaded with the best tools you can get your hands on. In our catalog you will find a hugh selection of Japanese saws, waterstones, chisels, planes, carving tools, cutlery and books. Send $1.50 for our catalog and supplements during the next two years.

THE JAPAN WOODWORKER
1731 Clement E-29, Alameda, CA 94501
Phone 1-800-537-7820

Oscillating Spindle Sanders
for discriminating woodworkers
who demand the best

FREE Color Catalog
1-800-971-5050

CLAYTON™
MADE IN USA

Heavy Glass Table Tops

FACTORY DIRECT DISCOUNT PRICING

- Table Tops
- Shelves
- Doors
- Display Cases
- Entertainment Centers
- Tempered Glass

TABLE TOPS BY PHONE
SATISFACTION GUARANTEED!

WGB GLASS ■ SHAPES ■ THICKNESSES ■ EDGE DESIGNS

FREE CATALOG - 1-800-288-6854

Bow Back Bench & Chair Plans $14.85

Octagon Picnic Table Plans $16.75
29"h x 77"w x 85"l

Specialty Furniture Designs
797 W. Remus Road, Dept. W-23
Mt. Pleasant, MI 48858
1-800-892-4026

Visa/MC/Discover Accepted
Color Catalog $2.00 FREE with order. MI - 4%.

One-Man Sawmill Turns Timber Into Cash!

30-DAY FREE TRIAL!

Sawmill goes right to the trees...turns out smooth, true-cut lumber - even beginners get excellent results. Just one man (no crew needed) can easily cut enough on weekends to save hundreds of dollars over high lumberyard prices. Factory-Direct selling keeps price low...easy terms...made in USA.

PHONE TOLL FREE 1-800-942-4406 Ext. SW17
TIMBERKING, INC. DEPT.SW17
1431 N. TOPPING, KANSAS CITY, MO 64120

JUST FOR DOWELS
DRILL-PRESS JIGS

Clamped to the drill-press table, this grooved piece of scrapwood holds dowels steady for flat drilling.

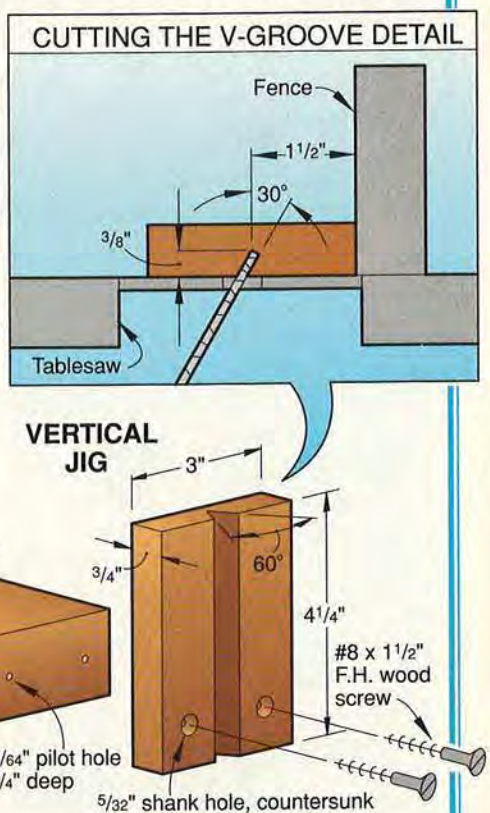
Screw the shorter V-groove block to an upright to drill straight down into the end of the dowel.

Drilling holes into the sides and ends of dowels, such as those required for our Craft Shop fishing pole, *page* 75, can challenge even the best woodworkers. The problem: trying to hold round stock in position. Here are a couple of simple jigs that will hold your dowels rock-steady.

Both jigs rely on a V-groove that you cut into a piece of ¾×3×20" scrapwood. To cut the V, tilt the blade of your tablesaw to 30° from vertical, and set the cutting depth to ⅜" as shown in the illustration at *right*. Adjust the fence to place the top of the cut on the centerline of the board. Make one pass over the saw blade, turn the board around, and run it through again, creating a 60° V-groove.

Crosscut a 4¼" piece off one end. The longer piece holds your dowels flat on the table, as shown in the photo *above left*. The shorter piece forms the basis for the second jig, which holds dowels vertically for drilling into their ends.

To complete the vertical jig, cut a 1½×3×3" block, clamp it to the back of the 4¼" piece and check to make sure that the V-groove is perpendicular to the base. Then glue and screw the two pieces together as shown in the Vertical Jig drawing. Use the vertical jig as shown in the photo *above right*.



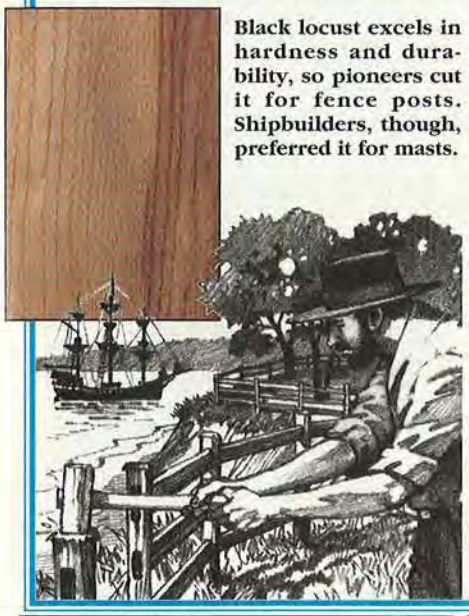
Photographs: John Hetherington Illustration: Roxanne LeMoine

WOOD ANECDOTE

Print this article

BLACK LOCUST

THE ENDURING TREE OF TALL-SHIP FAME



Black locust excels in hardness and durability, so pioneers cut it for fence posts. Shipbuilders, though, preferred it for masts.

When English naturalist Mark Catesby first visited Jamestown, Virginia, 100 years after its founding, he saw only the stark ruins of what the first inhabitants in 1602 had called home. But at each corner of the tumble-down huts remained a post—as solid as the day it was erected. He marveled at the still-sound wood, which had been named "locust" after an old-world look-alike.

Other colonists eventually learned of locust's longevitiy, too, because the tree became widely used. No wonder.

Black locust (*Robinia pseudoacacia*), as it has come to be called, offers superb qualities. Because a locust's trunk contains mostly sapwood, it's strong. In drying, locust hardly shrinks. In stiffness, it outdoes hickory. Fighting decay, it outlasts white oak. Burned, a cord of black locust throws off the heat of a ton of coal. And machined and sanded, the wood takes on a high luster.

Yet, black locust has never attained commercial status. That's because in most of the areas where it grows the tree suffers from insect attack, leaving few trees sound enough to harvest. So instead of becoming commercial lumber, black locust winds up as fence posts, firewood, and railroad ties. Except for one fleeting moment of historical greatness, that's the way it has always been.

You see, a variety of black locust, caringly cultivated in the late 18th century in New Jersey and New York—especially Long Island—earned renown. The tree's straight, branchless trunk proved perfect for shipmasts. Even today in the area, you can still find examples of those once sought after "shipmast locusts."

Illustration: Jim Stevenson

Buckboard Bench
(real springs)

Kit includes: authentically designed steel springs that give a little, metal arms & backrails, complete hardware & detailed instructions. 42"L x 13"W, 18"H to seat, 30"H to back. **$49.00** Also available, pre-cut and drilled oak for the bench. $60 addl.

The Roudebush Co.
Box 348A, Star City, Indiana 46985
800-847-4947
(Visa, MC Accepted) Price includes shipping UPS. IN res. incl. 5% sales tax.

HARDWOODS
EXOTIC & DOMESTIC
OVER 75 SPECIES
LUMBER • VENEER • TURNING STOCK
COLLECTORS SAMPLE KIT
30 GORGEOUS WOODS
Exotic & Domestic from Around the World
1/2" X 3" X 6" Sanded Finish
$39.00 *ppd in Cont US
Together with Book of Fine Hardwoods **$51.00** *ppd in Cont US
Over 70 woods shown in full color. Charts compare physical properties. 60 pgs

1-800-423-2450
WOODWORKERS Source
5402 S. 40th Street • Phoenix, AZ 85040
602-437-4415

BRANDING IRON
For hard and soft wood

$29.00
Plus $3.00 for shipping and handling
Nebr. residents add correct sales tax
SATISFACTION GUARANTEED or your money back
- **Shipped in one week**
- Solid brass head — raised letters
- 1st Line: HAND CRAFTED BY — as above
- 2nd Line: Your choice — 20 characters/spaces max.
- Electric iron available for $49.00 + $3.00

ORDER TOLL FREE . . .
1-800-826-7606
Order by mail from: **NOVA TOOL CO.**
12500 Finigan Rd., Dept. B94
P.O. Box 29341, Lincoln, NE 68529
VISA MasterCard DISCOVER

ATTENTION RETAILERS

Maximize store profits and customer satisfaction by selling WOOD® Magazine.
Flexible discount options.
Low minimum orders.

Call 1-800-678-8091
and get started today!

WATER WELL DRILL KIT
Thousands of happy gardeners and homeowners have discovered the Hydra-Drill secret. They drilled their own wells and their gardens prove it! You can, too. Call or write us today and we'll send you a big, free package of information about drilling your own well with the Hydra-Drill.
Video Available!
DeepRock
7492 Anderson Road
Opelika, AL 36802
Call Toll Free 1-800-333-7762
(Ask for Operator 7492)

THE CONVENIENCE AND QUALITY OF A COMMERCIAL PANEL SYSTEM AT A FRACTION OF THE PRICE!

$299.95
Industrial Panel Saw/Router Kits
- Self cleaning roller bearings
- 1/8" wall chromed steel guide tubes
- Instantly attach your saw or router

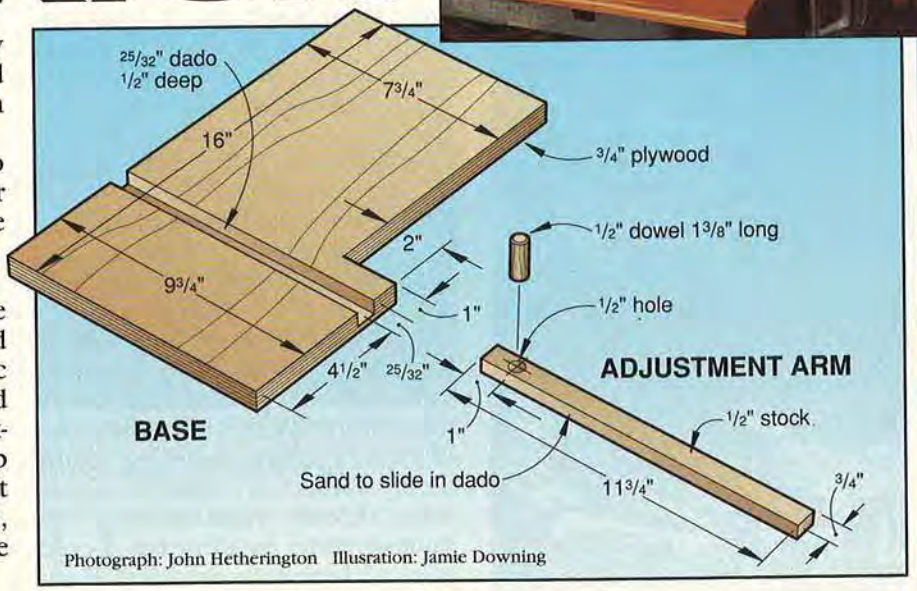
Aardvark Tool Co.
FREE BROCHURE
VIDEO 4.95
800-763-5795
2605 W. Alabama Rd. #202
Acworth, GA 30101

Print this article

DISC-SANDER SIDEKICK

Sanding rough-cut discs perfectly round will be easy once you build this sanding jig. We made ours in about 30 minutes.

To put your jig to work, clamp the base of the jig to your sander table, and center the disc to be sanded on the dowel near the end of the adjustment arm. Start the sander and slowly slide the adjustment arm with attached workpiece into the sanding disc until the disc sands to the marked circumference line on the workpiece. Turn the sander off, clamp a ¾×¾×2" stop to the adjustment arm, turn the sander on again, and slowly rotate the workpiece against the sanding disc.



Photograph: John Hetherington Illustration: Jamie Downing

BACK ISSUE SALE

While supplies last, you can order the issues listed below. We will process orders on a first-come, first-serve basis, and when the magazines are gone, that's it.

HURRY! Supplies Limited

***WOOD*® magazine**

#7 Surface sander, coffee table, doll furniture.
#8 Coat-tree, desk set, scrollsaws.
#12 Scrollsaw, breakfast tray, sandpaper storage.
#13 Cedar chest, kid's table and chairs, planers.
#19 Cradle, bird feeder, dovetail jigs.
#21 Barrister's bookcase, picture frame, plunge routers.
#22 Tall clock, blade-height gauge, teddy bear clock.
#23 Patio set, turned earrings, plate joiners.
#24 Outdoor planters, kid's trucks, drill-press techniques.
#25 Curio cabinet, glue caddy, layout tools.
#26 Yo-yo, wall clock, cribbage board, vacuums.
#27 Country bench and cabinet, floor lamp, box-joint jig.
#28 Trestle table, birdhouse, plant stand, stationary belt sanders.
#29 Entertainment center, low-voltage lighting, parrot mobile.
#30 Shaker chair, rod rack, portable belt sander.
#31 Woody car, waddling duck, jointers.
#32 Tambour desk, bookends, tablesaws.
#33 Router table, dry sink, microwaved bowls.
#34 Bowed psaltery, dollhouse, planers.
#35 Oak settee, spoon rack, handscrew clamps.
#36 Sofa table, candle box, electric drills.
#37 Workbench, toy tractor, woodworking vises.
#38 Tablesaws, bandsaws, scrollsaws.
#39 Block castle, shapers, Santa carving.
#40 Gun case, vase, shadowbox.
#41 Briefcase, napkin holder, wall cabinet.
#42 Spice cabinet, outdoor chairs, cordless drills.
#43 Dust collection, outdoor table, cutting board.
#44 Calendar/clock, carved plaque, toy toolbox.
#45 Shaker-style buffet, grader, scrollsaws.
#46 Toboggan, key chain, dado-cutting tools.
#47 Bandsaws, finishing products, cordless drills.
#48 Plant stand, music box, wooden hardware.
#49 Country quilt hanger, coffee table, airbrushes.
#50 Power mitersaws, bookcase, tow truck.
#51 High chair, plate rack, planers.
#52 Porch rocker, potpourri bowl, jointer knives.
#53 Pie safe, wagon, finish removers.
#55 Shaker-style chest, coatrack, air-filtration cabinet.
#56 Table lamp, Alpine Santa, drill press.
#57 Desk set, train, biscuit joiners.
#58 Clock, hamper, router.
#59 Dining table, bread box, random-orbit sanders.
#60 Door plaque, credenza, finishing sanders.
#61 Wall clock, outdoor furniture, leaded-glass panels.
#62 Desk, planer/molders, wall lantern.
#63 Tall clock, spoon rack, saw blades.
#64 Toy box, desk accessories, lathes.
#65 Table, plate, jigsaws.
#66 Jewelry box, ornaments, power nailers and staplers.
#67 Picture frames, bookcase, miters.
#68 Cabinet, finishing center, tablesaws.
#69 Air compressors, cookie jar, country chair.

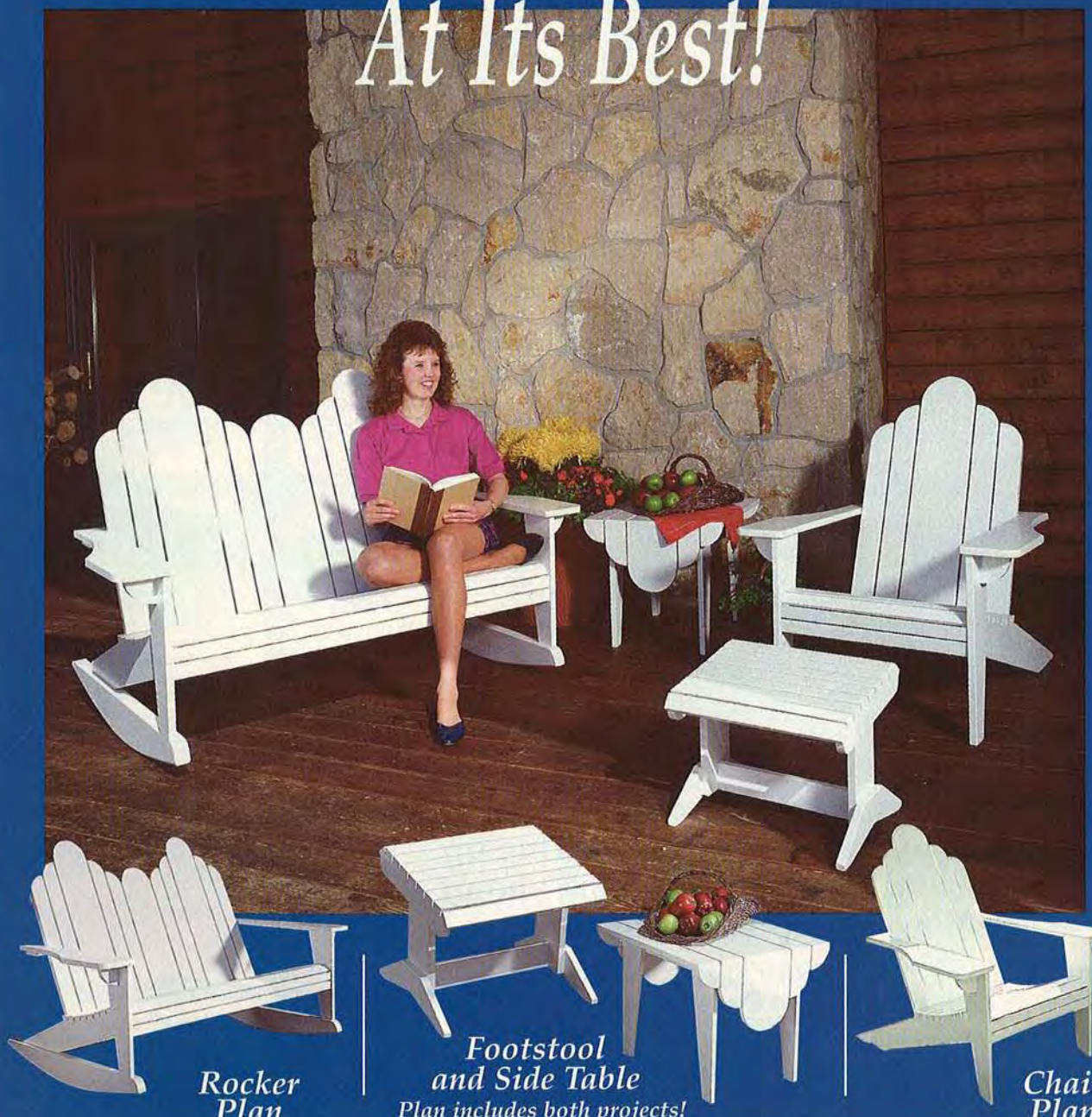
HERE'S HOW TO PLACE YOUR ORDER

1) Fill out the form at right, indicating which issues you want to purchase.
2) Send the order form to: ***WOOD* Back-Issue Sale**
P.O. Box 9255, Des Moines, IA 50306

NOTE: Supplies are limited, so we'd prefer that you purchase your magazines by credit card (MasterCard, VISA). This allows us to charge you only for those magazines we have in stock at the time we receive your order. We also will accept checks, payable to WOOD Back Issue sale, but this may increase the processing time on our end. Allow 4-6 weeks for delivery.

Name _____
Address _____
City _____ State _____ ZIP _____
Daytime Phone _____ ❑ VISA ❑ MasterCard
Exp. Date _____ Credit Card # _____
Signature _____
Single issues @ $5.95 ppd. For foreign orders, please add $1 per issue
Issues requested _____

Adirondack Lawn Furniture At Its Best!



Rocker Plan

Footstool and Side Table
Plan includes both projects!

Chair Plan

Enjoy this stylish collection of Adirondack lawn furniture by taking advantage of these easy-to-build project plans. The set offers solid wood construction and simple joints. For each project, follow the complete step-by-step instructions, easy-to-read drawings, materials list, and exploded view drawings. Full-size patterns for all curved pieces are included. The experts at WOOD magazine designed and built each project to assure professional results.

HOW TO ORDER: Order your Adirondack furniture project plans today by sending your name, address and the name of the plan(s) you wish to receive, plus a check or money order (U.S.) for the following plans:

- **Rocker, $12.95**
- **Footstool/Side Table, $9.95**
- **Chair, $9.95**
- **Buy any 2 plans for $19.00 or all 3 plans for $27.00.**

Postage and handling plus state and local taxes, if applicable, are included. Allow 4-6 weeks for delivery.

Mail to: WOOD PLANS
P.O. Box 9255, Dept. WD-27
Des Moines, IA 50306

SHOP TESTED

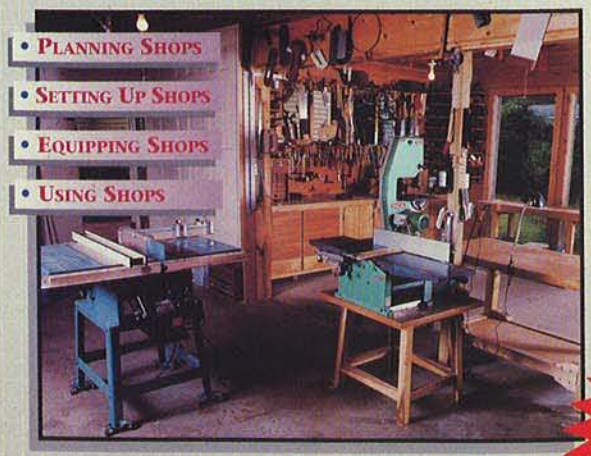
100% MONEY-BACK GUARANTEE IF NOT COMPLETELY SATISFIED.

Whether You're Fixing Up Your Shop or Building New,

Make Your Next Project the Perfect Shop, Your Dream Shop With . . .

WOOD

THE HOME WORKSHOP PLANNER



- Planning Shops
- Setting Up Shops
- Equipping Shops
- Using Shops

21-DAY FREE PREVIEW

A complete guide to planning, setting up, equipping and using your "dream" home workshop! Complete plans for . . .

• Start-Up Shop • Homeowner Shop • Woodworker Shop
• Craftsman Shop • Professional Shop

• 101 full-color photos • Over 160 full-color drawings, illustrations and diagrams • More than 60 charts, checklists and actual worksheets • 5 sample floor plans • Sources, including associations, publications and manufacturers • Full index • Hardcover • 192 pages

Reply Today!

PLUS, THIS FREE GIFT!

The "Whale" of a Scraper

Use it to remove burn marks from routed or sawn edges . . . to smooth wood . . . to clean glue lines . . . and more! This $6.00 retail value is yours FREE just for previewing THE HOME WORKSHOP PLANNER.

58-902

WOOD® Books
PO BOX 10674
Des Moines, IA, 50336-0674.

MasterCard and VISA orders call toll free:
1-800-678-2665

❑ **YES!** Rush me THE HOME WORKSHOP PLANNER for my 21 day FREE examination. I understand if I decide to keep the book, I'll pay three easy monthly installments of just $8.32 each plus shipping, handling and any applicable sales tax. If not delighted, I'll return the book and not owe a penny. My FREE gift, the "Whale" of a scraper is mine to keep!

Name_____

Address_____

City_____ State____ ZIP_____

Signature_____

182-480137

© Copyright 1994 Meredith Books. All rights reserved. Printed in U.S.A.

FATHER'S DAY GIFT LIST

Father's Day is June 19th. Mark the items you want, tear out this section and casually leave it where your family can find it. They'll get the hint!

STAINED GLASS

☐ Compliment your wood cabinets and clocks with stained glass or etched glass! Informative, 80-page color catalog shows you how. Complete line of glass, patterns, tools, and supplies. Send $4.50 for catalog. **DELPHI STAINED GLASS,** 2116 E. Michigan Ave., Lansing, MI 48912. 1-800-248-2048.

☐ Heavy duty plate jointer kit with biscuits. Dewalt plate jointer, 6.5 amp 10,000 rpm motor. Machined aluminum rack & pinion fence. Tilts 0-90° & has preset depth stops for #0, #10, #20 biscuits. Incl. 6 tooth carbide blade, dust bag, dust deflector, vaccum adaptor, Torx scewdriver, wrench & heavy duty steel carrying case. $225! Free freight & same day shipping. **TOOL CRIB,** P.O. Box 13720, Grand Forks, ND 58208. Toll free 1-800-358-3096. Visa, MasterCard and Discover accepted.

☐ Every woodworker needs a wood moisture meter to insure the quality of his project. The Delmhorst Model J-88 has an easy-to-read LED Display which indicates 10 ranges of moisture content between 6% and 20%. This instrument is ideal for a woodworking shop or the serious craftsman. Makes a great gift for Father's Day!! For a complete catalog or to place your order, call 1-800-222-0638. **DELMHORST INSTRUMENT CO.**

☐ Genuine Aladdin® Solid Brass Lamp with Opal Waterfowl scene shade. Functional, beautiful, complete lamp differs little from original 1908 Aladdin design. Choose oil burning #8136C or electrified #8137C, both $119.95 plus postage and handling. 800-843-3320. **VAN DYKES,** Box 278, Woonsocket, SD 57385.

☐ Custom made abrasive belts up to 52 in. wide in any size or grit. Free catalog contains hundreds of abrasives and woodworking accessories including: wide cloth belts, standard sheets, Velcro-backed discs, PSA discs and plain cloth discs, plus wood clamps, wood glue, drawer slides, hinges and more. Call 1-800-367-4101. **ECON-ABRASIVES.**

CherryTreeToys

☐ CHERRY TREE TOYS carries a full line of low priced, hard to find wooden parts plus a wide range of unique projects from clocks and birdhouses to toys and supplies. Plans and kits for all skill levels. Custom orders and bulk prices available. Send $1.00 for for the 68-page color catalog to: **CHERRY TREE TOYS,** P.O. Box 369-335C, Belmont, OH 43718.

☐ VIDEO on how to veneer using a vacuum bag. See article on page 76. Packed full of veneering know-how as well as the equipment used. A must for anyone who wants to expand their capabilities to obtain superior results on custom furniture. Special $19.95 + $4 S&H, reg. $33.95. 78 minutes. **Quality VAKuum Products, Inc.** 1-800-547-5484.

☐ Bostitch N80S-1 Stick Nailer. Newest design light weight nailer for framing, decking, sheathing with high maneuverablity. Drives nails 2" to 3-1/2" lenghts. Fast loading of up to 3 sticks of nails. Accepts plain, galvanized, ring-shank, screw-shank and stainless nails. List Price $578, Super Special Price, $348 from **Tools on Sale™,** 216 West 7th St., St. Paul, MN 55102. Call toll free 1-800-328-0457.

☐ Sand curved pieces with ease. New American-made oscillating spindle sander features many unique details. Quality built, for a lifetime of enjoyable and dependable service. Dust collector hook-up, ground steel top, dynamically balanced spindle with sealed oil-bath cam and quick change drums are all standard. Several models to choose from. FREE catalog. **CLAYTON MACHINE CORP.,** P.O. Box 513, Clawson, MI 48017. 1-800-971-5050.

☐ **BUILD A WOODEN SHIP MODEL!** Museum quality replicas up to 4 feet long. Kits contain pre-cut wooden parts, metal and brass fittings, easy instructions. Send $1.00 for 92-page color catalog to: **MODEL EXPO,** Dept. WD54, P.O. Box 1000, Mt. Pocono, PA 18344.

☐ **ENCYCLOPEDIA OF HOME DESIGNS.** 500 different designs offering the richest and most varied selection of plans now available in any single home plan book. Features full-color renderings of our "Reader's Choice", plus other contemporary and traditional styles. Over 1,368 illust. Complete blueprints avail. $12.50 ppd. **HOME PLANNERS, INC.,** Dept. WME45, 3275 W. Ina Rd., Ste. 110, Tucson, AZ 85741.

☐ **FREE!** Big information package, including "How to Drill Your Own Water Well" booklet. There's no limit to the wonderful things you can do when you have your own private water system and no water bills. Learn how over 100,000 home water wells have been drilled this easy, low-cost way since 1962. Video also available. **DEEPROCK MFG. CO.** 7491 Anderson Rd., Opelika, AL 36802. 800-333-7762, operator 7555.

☐ Ready to assemble and finish kits, include desks, chairs, dining tables, hutches, sideboards, and living room occasional tables. Beautiful Queen Anne style available in Cherry-Oak-Mahogany-and Walnut. Catalog also includes various legs and table bases for the serious woodworker. **ADAMS WOOD PRODUCTS, INC.** Dept. M-19, 974 Forest Drive, Morristown, TN 37814. 615-587-2942.

☐ Here's a complete antique picture frame restoration kit, including training manual and video, that show you how to capture big profits fixing frames. Frame-Kit is a great add-on business or part-time opportunity. Complete furniture restoration catalog: $2. Free workshops, **MINUTEMAN, INC.,** Dept. 17, 115 N. Monroe, Waterloo, WI 53594. 1-800-733-1776.

☐ Build tomorrow's heirloom today! "Merrilegs", designed to capture the spirit and beauty of a child's loyal steed, also provides pleasure and satisfaction for the woodworker. Full-size, easy-to-make plan #121, $14.00 ppd. Catalog of 200 professionally designed plans for building furniture $3.00. **FURNITURE DESIGNS, INC.,** 1827 Elmdale Ave., Glenview, IL 60025. Mastercard, Visa. 708-657-7526.

☐ Parts for making beautiful gold plated wooden barrel pens, pencils, rollerball pens, fountain pens plus more. Kit and instructions available. Easy to make. Call or write: **THE BEREA HARD WOODS CO.** 6367 Eastland Rd. Brookpark, OH 44142. 216-234-7949.

☐ If you enjoy wood carving or wood working, a versatile Marlin wood carving machine may be just what you need. Sign carving, three-dimensional carving of decoys, sculptures, plaques, panels and moldings as well as gun stocks and furniture pieces are easily carved on one of the three models of machines Marlin offers. Brochure $1.00. **TERRCO, INC.**, 222 1st Ave. NW, Watertown, SD 57201. Phone 605-882-3888.

☐ Swedish miter makes easy work of cutting perfect picture frames and mouldings with its thin, tensioned 18tpi blade. Max size of workpiece at 90°; 6 1/2" wide x 4 1/2" high. 5 pre-set stops. $128.20 ppd. Stock #71H0101. **GARRETT WADE CO.**, 800-221-2942.

☐ The RBI Hawk Scroll Saw, 4-in-1 Woodplaner, Router Tables, Drum Sanders, & new PanelMaster II + more can be found in our new full color "All Products" free catalog. See the entire line of products and accessories from **RB INDUSTRIES**, The American Tool Manufacturer. Call 1-800-487-2623. **RB INDUSTRIES**, 1801 Vine St., P.O. Box 369, Harrisonville, MO 64701.

☐ Collectors wood samples — Unique gift for woodworkers. 30 gorgeous woods—1/2" x 3" x 6", sanded and individually labeled. Ideal for collectors, cabinet and furniture makers, designers, architects, and wood enthusiasts. $39.00 ppd cont. US., including BOOK OF FINE HARDWOODS with 70 color pictures, $51.00 ppd cont. US. **WOODWORKERS SOURCE**, 5402 S. 40th Street, Phoenix, AZ 85040. 1-800-423-2450.

☐ Laguna Tools 18" band saw, 2 HP motor, top and bottom guides. 11" resaw capacity. Heavy duty machine with cast iron table and wheels. Blade from 1/8" to 1" width. Tilt table. Rack and pinon on upper blade guard. Foot brake. Very smooth and quiet. Call 1-800-234-1976 for more information. **LAGUNA TOOLS**, 2265 Laguna Canyon Rd., Laguna Beach, CA 92651.

☐ Executive Wood Toys! Now you can create this 1929 Ford van and many others like it from our detailed and easy-to-read patterns. We offer you a complete line of patterns, parts, and wheels. Make this Father's Day one to remember with our Executive Wood Toys. Send $1.00 for catalog to: **TOYS AND JOYS**, Box 628 GL. Lynden, WA 98264.

☐ The "affordable portable" one man band sawmill. Weighs only 45 lbs. Cuts 20" diameter logs into lumber. Minimum 1/8" to maximum 9" thickness. Write or call for free brochure. Videos available. **BETTER BUILT CORPORATION**, 845 Woburn Street, Dept. W. Wilmington, MA 01887. 508-657-5636. MC/VISA and Discover accepted.

☐ The Ryobi® Detail Sander with its triangular shaped head and sanding angles of various grits, fits perfectly into tight spots to quickly finish rough detail work—virtually eliminating finger sanding. Optional accessories include a scraper blade, metal finishing pad, wax/buff pad, stripping pad and finishg pad. Under $50. Made in U.S.A. 1-800-525-2579. **RYOBI AMERICA CORP.**, 5201 Pearman Dairy Road, Suite 1, Anderson, SC 29625-8950.

☐ Faster than traditional mallet & chisel, Hand-Craft carving tool chisels wood at up to 10,000 VPM. Professional quality; perfect for hobbyist and journeyman carver. Safe, lightweight, easy-to-use. Pressure controls carving speed, depth. Includes hardened steel cutting blades. Operates on household current. Starts at $314.00. Visa & Mastercard accepted. **SUGINO CORP.**, 1700 Penny Lane, Schaumburg, IL 60173. 708-397-9401.

☐ This hot branding tool allows the user to brand wood projects quickly and easily. It heats in approximately 1–2 minutes with an ordinary propane torch. Has solid brass head with 1st line reading: HAND CRAFTED BY and 2nd line your choice, up to 20 characters and spaces. $32.00 ppd. 1, 2, 3 and 4 line units also available with standard top line or other copy. Electric units also available. Order TOLL-FREE at 1-800-826-7606. By mail: **NOVA TOOL CO.**, PO Box 29341, Dept. BGL, Lincoln, NE 68529.

makita

FREE EXTRA BATTERY!

6095DWE

☐ Special Edition Kit 9.6V Cordless Driver Drill with Keyless Chuck, Universal Charger, Case, & Two Batteries! List $290. Sale $139. Free Battery! Complete Line at the Right Price! 1-800-262-5482. That's 1-800-2-MAKITA.

CALL 1-800-262-5482

HOME LUMBER CO

449 WHITEWATER ST., WHITEWATER, WI 53190

COD

BOULTER PLYWOOD

One Stop Wood Shop

☐ Hardwood plywood, 30 species in stock (exotics made to order). Hardwood lumber and marine plywood all under one roof. Custom cutting services to your exact specifications with little or no waste and at competitive prices! And, we specialize in handling and shipping. Call 617-666-1340 today for catalog and quotations. **BOULTER PLYWOOD CORP.** 24-GL Broadway, Somerville, MA 02145.

☐ The Dupli-Carver is a wood duplicating machine that can reproduce three-dimensional carving in wood. The machine uses a stylus (tracer) to follow the contours of a statue or plaque. Two models starting at $395. **WOODMIZER®**, 8180 W. 10th St. Dept. QQ88, Indianapolis, IN 46214. 800-553-0219 or 317-271-1542.

☐ Don't give up the sporty look. The most attractive and practical way yet to cover up a pickup bed. Weather-tight key locked roll up hard cover that automatically retracts out of the way when you need your bed fully open. **PACE EDWARDS CO.**, 100 Commercial St., Centralia, WA 98531. 1-800-338-3697.

☐ 30 lbs. of assorted hardwoods. Excellent for small crafts and toys. Random species and thicknesses. All surfaced 2 sides, 1/2" – 2" thick, 3" – 10" wide and 6" – 24" long. Shipped UPS prepaid, $29.95. **STEVE H. WALL LUMBER CO.**, Rt. 1, Box 287, Mayodan, NC 27027. 1-800-633-4062 or 919-427-0637.

☐ Jorgensen E-Z Hold Clamps come in sizes; 6", 12", 18", 24", 30", and 36". These clamps offer the best single-handed clamp available today. Made of durable steel construction, with superior speed, design and applied force . . . out performing other one-handed clamps. E-Z Hold the newest idea from the oldest name in quality clamps. Also available in Jorgensen E-Z Hold Adaptor Kits. Write: **The Adjustable Clamp Company**, 410 N. Ashland, Chicago, IL 60622.

"Jorgensen"

E-Z HOLD #3600

☐ NEW! Can-Do Clamp makes it easy to do framing, drilling, doweling, and more! Securely clamps woodwork at right angles. Two swivel points align different thicknesses of wood. Made of cast aluminum and has convenient bench mounting slots. Easy to use. $24.95. 1-800-533-9298. **MLCS**, P.O. Box 4053, Rydal, PA 19046.

☐ Dry your own lumber using our equipment and your insulated chamber. Dehumidification systems from 300 BF to 45,000 BF. Easy to operate equipment offers high quality kiln-dried lumber for pennies per foot. These long-lasting made-in-the-USA units can pay for themselves in one month! Free Catalog. **NYLE STANDARD DRYERS, INC.** P.O. BOX 1107. Bangor, ME 04402. 207-989-4335.

☐ New from Calculated Industries, the Construction Master III gives you the power to both work in and convert feet, inches, fractions, yards, board feet, and metric measurements. Instantly solves rafters, stairs, circular problems, and dimensional conversions. Includes user's guide, case, battery and 1-year warranty for just $69. Available from **ABBEY TOOLS**, 1132 N. Magnolia, Anaheim, CA. 1-800-225-6321.

WOODWORKER'S BOOK CLUB

☐ Get a free woodworking book with the money-saving joining offer from Woodworker's Book Club. After you join, you have NO OBLIGATION to buy any more books. As a member, you'll get reviews of more than 100 of the newest and best woodworking books each month — every one discounted from 15-50%! See our full page ad in this issue or send for more information. **WOODWORKER'S BOOK CLUB.** 1507 Dana Ave., Cincinnati, OH 45207.

☐ Buckboard bench kit includes steel springs authentically designed to give a little. Metal arms, backrails, hardware and complete instructions. $49.00 includes shipping (Visa, MC accepted). We also sell pre-cut oak for the bench.
To order write to **THE ROUDEBUSH CO.**, Box 348A, Star City, IN 46985, or call 1-800-847-4947.

☐ The "Wood-Friendly"™ L606 uses advanced electromagnetic wave technology to accurately measure wood moisture content from 6% to 30% to a depth of 3/4". No pins to "abuse" wood and leave ugly holes. Convenient pocket size, easy-to-read analog meter, and low price make it a must for all woodworkers. Free literature. **WAGNER ELECTRONIC PRODUCTS, INC.** 1-800-944-7078.

★THE WOODWORKING SHOWS★
machinery • tools • supplies

☐ Woodworking, Tools and Supplies—Hundreds of products for the woodworker demonstrated and sold at discount prices at every ★ Woodworking Show ★. In-depth seminars and free workshops on a variety of woodworking topics. Shows are scheduled in 30 cities. Call for free brochure Monday - Friday, 8 a.m. - 5 p.m. Pacific time, 1-800-826-8257 or 310-477-8521.

SAW BLADE
10" x 40T.x 5/8" x 1/8" & 3/32 Rip and Crosscut wood and plys to 1-1/2" smooth as sanded. Outperformed 36 other PREMIUM blades.

DADO SET 8"
13/16 x 5/8
List $321
SALE $289
Outperformed 29 sets in WOOD® test and 32 sets in *Fine Woodworking* Magazine.

WoodWorker II
List $156. SALE $119.

☐ See our ad on page 27. Free shipping on both items. Must mention *WOOD* Magazine. Credit cards or business accounts. 1-800-733-7111, mail **FORREST**, 461 River Rd., Clifton, NJ 07014.

☐ **ADVANCED SCROLL SAW PATTERNS AND PROJECTS.** Full-size scroll saw patterns and projects. Advanced projects are a challenge, fun to do and give you a lot of satisfaction when completed. Plan for clock shown, $12.95. Catalog only $1. Catalog included with order. **NELSON DESIGNS**, P.O. Box 422, Dublin, NH 03444-0422,

☐ NEW! Craft & Woodworking Catalog. Top-quality tools & accessories for your shop. Includes complete information & prices on HEGNER Precision Scroll Saws, blades, & accessories for other scroll saws, HEGNER Lathes & Duplicators, HEGNER Accura Precision combination machine, PLANO Vertical Glue Press, FELDER Woodworking Sytems, bar clamps & more. Free catalog. Call 302-322-2226. **ADVANCED MACHINERY IMPORTS**, P.O. Box 312, Dept. 620, New Castle, DE 19720.

☐ Eliminate Aggravation. No more inspection and cleaning of saw dust.

Wood Forces Saw Dust Down, Out and Under Fence

DUST DEVIL® Self Cleaning Fence. New angled and elevated fence eliminates saw dust buildup. Wood forces saw dust down, out and under fence. Perfect alignment every time. Compatable with Biesemeyer stop, 3/16 aluminum main legs, 5 ft. lenth. Upgrade your radial arm saw or router table. **AARDVARK TOOL COMPANY, INC.**, 404-975-1301.

☐ Super gift, only $360.00 plus shipping, will get you this excellent quality 10" heavy duty table saw, model #EN3201.

1-1/2 HP, quick and easy single lever fence locking sys., specially designed and sturdy cabinet base stand with a built-in Dust Collector Chute and much more. To order or receive free catalog, call 1-800-888-9697 or write to **ENLON IMPORT CORP.**, 19400 San Jose Ave., Industry, CA 91748.

☐ Skil® model 7275 Sandcat® Finishing Sander has a ball bearing 1.7 amp motor which delivers 13,000 orbits per minute for smooth, quiet operation. It features a dust sealed rocker switch and a rubber base pad for smooth finishes. It sands flush on three sides. Check your Yellow Pages for the **SKIL** dealer nearest you.

☐ 3 (tested) P.V.C. Bluebird house designs all adapt to either wood or steel fence post and top that opens for cleaning. Plan $6.50 ppd. Color catalog $2.00.

Free with order. **SPECIALTY FURNITURE DESIGNS**, 797 W. Remus Rd., Mt. Pleasant, MI 48858. 1-800-892-4026. Visa/MC/Discover. MI add 4%.

☐ A radial arm saw can now be your most accurate angle cutting machine. Cut 0 degrees to 47 degrees +/- 1/4 degree accuracy with the 90 degree setting. Made from precision tempered aluminum. Ruled main fence, sliding stop-block and two miter fences. $118.00 ppd. **FL DOYEL INC.**, P.O. Box 315, Yorba Linda, CA 92686. 714-524-3255.

☐ **12" DOVETAIL JIG.** Make professional dovetail joints with Cascade's 12" Dovetail Jig. Solid cam-action clamps lock materials up to 1-1/4" thick securely in place while your router cuts perfect 1/2" dovetails. Save Dad the time and frustration of old-fashioned hand-cut dovetails and reap the benefits of precision dovetail joints. **CASCADE.** 1-800-235-0272. Fax your order to 1-800-392-5077 for the Model C3240 12" Dovetail Jig. Only $69.95.

☐ **THE WOODTURNERS CATALOG.** 68 color pages of fine quality woodturning tools & supplies. Large selection of project kits incl. 10K pen & pencils, Mont Blanc style pens, Perfume Atomizer kits plus. Our Woodfast Lathes, One Way Scroll Chucks & Henry Taylor woodturning tools will please discriminating woodturners. $2.00 for catalog-ref. w/order. **CRAFT SUPPLIES USA**, P.O. Box 50300, Provo, UT 84605-9915. 1-800-551-8876.

Anderson™
BEDROOM ORGANIZER

☐ **PUT A DRESSER UNDER ANY BED!** Up to 16 large drawers. Fits under all box springs. Replaces bed frame. Solid wood, beautifully finished, dust proof, ball bearing slides, 6 ft. long end drawer. Economical, space-saving storage. Shipped UPS. Free catalog. 1-800-782-4825.

☐ Using glass makes sense: A free catalog showing ways to use glass and where to buy it at "affordable" prices. Deal direct and save. For free **WGB GLASS IDEAS** and prices on glass 1/4 inch thick to 1 inch thick, call: 1-800-288-6854.

☐ Bosch 2 horsepower variable speed plunge router features Micro Fine Depth Adjustment, seven position turret, quick change template guide system & covered plunge posts. Includes 1/4" & 1/2" collets & as a special limited offer, free deluxe edge guide. Model 1613EVS is available at **INTERNATIONAL TOOL CORPORATION** for $199.00. Call 1-800-338-3384.

SALTER INDUSTRIES SPIRAL STAIRS

- Free enclosed tread ends, $220 Value
- Discounted Delivery, Coast to Coast
- Quick Ship, on stock stairs
- Shipped knocked down for easy handling
- Diameters from 3'6" to 7'
- Strong steel main frame
- Oak & Brass options

Free Brochure. **SALTER INDUSTRIES**, P.O. Box 183, Eagleville, PA 19408. 610-631-1360.

☐ **MODEL 2757 MITER SAW WORK STATION.** Give Dad plenty of room for his cross-cutting chores Lock a 2"x6" into the sturdy steel legs, mount your miter saw on the handy clamp-on table, adjust the rollers to fit your needs — and you're ready to make quick work of long stock and moldings. The Miter Saw Work Station folds into an easy-to-carry package in just seconds. Just $57.95. To order call **GRIZZLY**: 1-800-5537 West of the Mississippi, or 1-800-523-4777 East of the Mississippi.

☐ This Father's Day, help

Dad build his dreams! All across the country Dads are saving thousands of dollars on woodworking shops, backyard shops, RV garages, aircraft hangars and equipment storage. Whatever your Dad needs, you will find a SteelMaster that's just the right size for the job. For more information on a legendary **SteelMaster Building** send $1.00. Rt. 5 Box 311A, Boone, NC 28607. 800-888-6335.

☐ Every father hates to sand, but he'll love the **PERFORMAX** 16-32 Benchtop Drum Sander. Great for all project sizes. Wood as wide as 32" (two passes), as thick as 3", as thin as 1/64", and as short as 2-1/4" can be perfectly sanded every time. Abrasives change quickly for abrasive planing to fine finish sanding. Price: $799. Free brochure. **PERFORMAX PRODUCTS, INC.**, 12211 Woodlake Dr., Burnsville, MN 55337. 1-800-334-4910 or 612-895-9922.

Print this article

Woodworker's Resource

You can get useful ideas and product information by mail. Use the coupon in this section to order your choice of literature listed below. Each company mails the catalogs or information directly to you.

POWER TOOLS

SCROLL SAW, CRAFT & WOODWORKING CATALOG—Specialty products from the exclusive distributors of HEGNER, the precision saws with SCROLLVERGNUEGEN. Complete information on scroll accessories, including blades and lettering guides. Also JET Clamps, HEGNER Lathes, PLANO Vertical Glue Press, and more. Toll-free customer service hotline included! **AMI, LTD.** $2.00. *Circle No. 3.*

TOOL CRIB CATALOG—Since 1948, woodworkers, homebuilders, industry and schools across the country have looked to the Tool Crib as their source for power tools and equipment. Our prices are low; our sales people are knowledgeable; and our service is first-rate! We stock over 10,000 tools with top name brands like Black & Decker, Delta, Ryobi, Makita, Powermatic, Jet, Freud, Bosch, Porter Cable, Milwaukee and many more. We offer competitive prices with quality service and same day shipping. Send for your NEW 1993 catalog. It's worth it! **TOOL CRIB.** $3.00. *Circle No. 6.*

TRANSPOWER, CP TOOLS INC.—A fine line of quality woodworking machinery, saws, shapers, planers and more. Send for free catalog. **CP TOOLS INC.** Free. *Circle No. 15.*

CLAYTON MACHINE—Sand curved pieces with ease. New American-made oscillating spindle sander features many unique details. Quality built, for a lifetime of enjoyable and dependable service. Dust collector hook-up, ground steel top, dynamically balanced spindle with sealed oil-bath cam and quick change drums are all standard. Several models to choose from. Catalog. **CLAYTON MACHINE.** Free. *Circle No. 18.*

ENLON IMPORT CORP.—With our exclusive manufacturer, we offered the best deals for your woodworking needs. A large selection of Fine Woodworking Machinery, Tools and accessories for your home and business workshop. Check out our season sales for your life time savings. Catalog. **ENLON IMPORT CORP.** Free. *Circle No. 35.*

INCA MACHINERY INFORMATION—Complete information on the famous line of Inca woodworking machines. Designed for precision work by the small to medium sized cabinet shop. Used by thousands of hobbyists and professionals. Table saws, bandsaws, joiner/planers, dust collector, radial arm saw. **GARRETT WADE CO.** Free. *Circle No. 44.*

HOME LUMBER—For the largest selection of Makita at the right price. We also provide great pricing on Amana Carbides, DeWalt power tools, Bostitch Air Nailers & David White Instruments. Same day shipping, free freight. We accept Visa, Mastercard, Discover, COD. Send for information. **HOME LUMBER.** $1.00. *Circle No. 48.*

INTERNATIONAL TOOL CORPORATION CATALOG—features the best tools & accessories at the absolute lowest prices anywhere! Whether you are a home woodworker or an industrial user, you will find an incredible selection featuring Porter Cable, Bosch, Skil, Freud, Delta, Milwaukee, Hitachi, and many, many more. We offer same day shipping, the most knowledgable sales staff and free shipping on most UPS orders in the continental U.S. **INTERNATIONAL TOOL CORP.** Free. *Circle No. 49.*

LOBO POWER TOOLS—Fine crafted woodworking power tool, top quality, affordable prices. A commitment of customer satisfaction, with a full 1 year warranty. We sell a complete line with many options for our band saws, table saws, planers, jointers, double drum sanders, edge sanders, wide belt sanders, power feeders and many, many more. Send today for a free brochure. **LOBO POWER TOOLS.** Free. *Circle No. 57.*

GET TO THE FINISH LINE FASTER—with a Performax drum sander. Don't spend hours with a hand-held belt sander. Sand ultra-wide stock ultra-smooth in just minutes. Models start at $300 to $3495. Select the model that fits your budget and your needs. New metal abrasive fasteners keep sandpaper tight without re-wrapping. **PERFORMAX PRODUCTS.** $1.00. *Circle No. 78.*

WOODWORKING TOOLS & ACCESSORIES—While the history of RBIndustries goes back 60 years, this is the first time we've brought together all our precision-made tools and accessories in one catalog. The Hawk Precision Scroll Saw, 4-in-1 Woodplaner, Panel Master Door Machine, Router System, and much more. Quality equipment built here in the heart of America. When you buy from us, you deal directly with the manufacturer. Our prices, quality, and 3 year Warranty reflect our commitment. Send today for FREE information. **RB INDUSTRIES, INC.** Free. *Circle No. 84.*

MINI POWER TOOL CATALOG—Designed for easy reference, Ryobi's "shirt pocket" Power Tool Catalog includes our complete line of power tools, categorized by type: bench top, cordless, hand-held and stationary models. It features individual tool photographs with specifications and clear descriptions that offer specific uses and benefits. Accessories are also listed. Send for catalog. **RYOBI.** Free. *Circle No. 86.*

TOOLS ON SALE™—A division of Seven Corners Ace Hardware, Inc. offers a catalog of over 400 pages of the most popular brands of power tools available anywhere, all at discounted prices. Included are saws, planers, sanders, routers, drills and more from manufacturers such as Milwaukee, Makita, Porter Cable, Black & Decker, Dewalt, Freud, Bosch, Delta, and many more. Now introducing a full range of Werner brand ladders. Tools on Sale™ division of **SEVEN CORNERS ACE HARDWARE, INC.** $1.00. *Circle No. 92.*

PORTABLE SAWMILLS—Convert logs into valuable lumber—Wood-Mizer® Products manufactures a line of portable bandsaw mills that allows the novice as well as the experienced sawyer to safely convert standing logs into lumber. Then, with the use of our SolaryDry™ Kiln or Vacu-Kiln™ to dry your lumber, you could increase the value of every board you produce. We manufacture some of the most progressive woodworking equipment on the market today. Product videos available. Send for our 31-page catalog. **WOOD-MIZER PRODUCTS.** $2.00. *Circle No. 94.*

HAND TOOLS

IMPROVE YOUR WOODWORKING SKILLS!—Craftsmen around the world have discovered the secret of better quality work. The 72 page Japan Woodworker Catalog is loaded with a huge selection of Japanese saws, waterstones, chisels, gouges, carving tools, planes, cutlery and garden tools. Send for 1992 catalog and all supplements for two years. **THE JAPAN WOODWORKER.** $1.50. *Circle No. 190.*

PLANS

FULL-SIZE FURNITURE PLANS CATALOG—Illustrates and describes over 200 plans for making furniture of quality found in museums and fine furniture stores. Plans include rolltop desk, cradles, dining tables, chairs, buffets, chests, gun cabinets, poker table, children's furniture, rocking horse, spinning wheels, and more. Bill of materials exploded drawings assist the woodworker. **FURNITURE DESIGNS, INC.** $3.00. *Circle No. 345.*

430 AFFORDABLE HOME PLANS—This top seller has plans to satisfy modest and medium building budgets. Each of four sections—one-, 1½, two-story, and multi-level—includes styles such as Tudor, Early American, Spanish & Western, and Contemporary. Floor plans include houses for narrow and sloping sites. Economical rectangular shapes as well as expandable 1½ story houses are included. A handy check list is provided to help you plan a more affordable home. Blueprints available. **HOME PLANNERS, INC.** $9.95 ppd. *Circle No. 373.*

DECK PLANNER—Not just another collection of deck ideas or photos. Practical plans and details are provided for 25 different decks, including single-, double-, and multi-level designs, and wrap-around decks. These beautiful wood decks are designed for a variety of house styles and feature storage compartments, serving counters, overhead trellises, and seating areas. How-to data and project starters for the build-it-yourselfer as well as information necessary to effectively oversee deck construction are also included. Blueprints and material lists available. **HOME PLANNERS, INC.** $8.95. *Circle No. 374.*

ENCYCLOPEDIA OF HOME DESIGNS—A total of 500 different designs offers the richest and most varied selection of plans now available in any single home plan book. Exterior styles include Early American, Colonial, Federal, Tudor, French, Spanish, and Contemporary. Over 1,368 illustrations make this volume the perfect reference and idea-book. Blueprints available. **HOME PLANNERS, INC.** $12.50. *Circle No. 375.*

200 BUDGET-SMART HOME PLANS—200 intriguing plans by seven Blue Ribbon Designers have been selected to meet the needs of those with restricted building budgets. This rich collection of homes, ranging from 902 to 2,540 square feet, has strong styling coupled with low-cost livability. Blueprints available. **HOME PLANNER, INC.** $8.50. *Circle No. 376.*

ADVANCED SCROLL SAW PROJECTS—Full-size scroll saw patterns and projects more complicated than most available today anywhere. Advanced projects such as these are a challenge, fun to do and give a lot of satisfaction to make. Partial list includes wall and corner shelves, mirrors, toys and clocks. **NELSON DESIGNS.** $1.00. *Circle No. 410.*

WOODWORKERS—Send for our color catalog with many exciting new plans available. Six styles of bed plans such as 2 Car Beds, Gingerbread Bed, Futon Sofa, Lounge and Bunk/Sofa Combo. New designs in lawn furniture are Adirondack Tete-A-Tete, Patio Rocking Glider, Small Garden Wishing Well, Bird Feeders and Bird Houses. We have added a Doll Cradle, Baby Cradle, Toddler Caster Horse and a variety of craft items. Full size templates, material list, instructions and cutting diagram. **SPECIALTY FURNITURE DESIGNS.** $2.00. *Circle No. 445.*

WOOD TOY PATTERNS—Patterns for all ages including children's patterns and executive toys. New catalog has many new patterns to choose from including parts and wheels. Send for new catalog today. **TOYS AND JOYS.** $1.00. *Circle No. 465.*

TO ORDER THESE BOOKLETS, USE COUPON ON PAGE 94

BUILD A NEW UTILITY WAGON—for Christmas "93". This hi-tech 6 wheel design has a 2' x 4' cargo box, rear wheel suspension and automotive steering. Made of plywood, hardwood, and simple metal parts. Full sized blueprint pack $15.95+$2.50 S/H. Send $2 for the Wings & Wheels 16 page catalog. **WINGS AND WHEELS.** $2.00. *Circle No. 485.*

LUMBER

QUALITY EXOTIC LUMBER/TURNING WOODS—We offer a comprehensive selection of fine quality exotic woods. Also available are mechanisms for making wooden barrel pens/pencils/ roller balls/fountain pens. Ebony, Kingwood, Tulipwood, Snakewood, African Blackwood, Cocobolo, Bloodwood, Figured Maple, Spaulted Maple, Padauk, etc. Unique and unusual turning woods and burls are also available. Send for catalog. **BEREA HARDWOODS.** $1.00. *Circle No. 510.*

ONE STOP WOOD SHOP—Domestic and exotic hardwood plywood and lumber, marine plywood, over 30 species in stock—all under one roof. Custom cutting services to your exact specifications with little or no waste at competitive prices! We specialize in bundling and shipping. Send for catalog. **BOULTER PLYWOOD CORP.** Free. *Circle No. 512.*

EXOTIC IMPORTED AND DOMESTIC HARDWOODS—Over 75 species of lumber, bowl blanks, turning squares and veneer. Samples (½" x 3" x 6") ideal for craftsmen, furniture and cabinet makers, architects, and designers available. Catalog provides common and botanical name, source, and description of each wood. Send for catalog. **WOODWORKERS SOURCE.** $1.00. *Circle No. 598.*

VIDEOS

LAGUNA TOOLS VIDEO—Learn why most European workshops are using a central machine center rather than separate machines. 90 min. video presentation of "The Intelligent One Man Shop. The Robland X 31". Send for video. **LAGUNA TOOLS.** $6.00. *Circle No. 615.*

VIDEO ON HOW TO VENEER—with a vacuum system. See article on page 76. The best and most comprehensive video on vacuum bag veneering. Basics through advanced techniques to give superior veneering results. Veneer flat and curved pieces, make curved laminations, even a large door arch. Bumpy veneers get flattened and stay down. Hobbyist and pro's rave about how informative and interesting it is. Most view it 3 & 4 times and learn something new each time. **QUALITY VAKUUM PRODUCTS, INC.** $23.95. *Circle No. 625.*

GENERAL WOODWORKING CATALOGS

THE WOODTURNERS CATALOG—48 color pages of the finest woodturning tools, machinery and supplies available. Featuring Henry Taylor, Sorby, Richard Raffan and Dale Nish workshops. Catalog price refunded with order. **CRAFT SUPPLIES USA.** $2.00. *Circle No. 830.*

MASTER TOOLS CATALOG—1992-93 236-page master woodworking tools catalog. Full line of the best hand tools, power tools & accessories, machinery, glues, finishing supplies, workbenches, and much more. Hundreds of books included. All four-color. Lots of technical information. **GARRETT WADE CO.** $4.00. *Circle No. 855.*

GRIZZLY IMPORTS, INC.—1993 is our 10th year of providing woodworkers with an incredible selection of machines, tools and accessories at prices you can afford. Send for your free 1993 catalog today and celebrate with tremendous savings on all your woodworking needs. **GRIZZLY IMPORTS INC.** Free. *Circle No. 860.*

TOOL CATALOG—"Innovation" sets Leichtung apart from the rest! You'll find tools and accessories for the serious woodworker, do-it-yourselfer and hobbyist, many of exclusive design. 78 page full color catalog. 400-plus items. **LEICHTUNG WORKSHOPS.** Free. *Circle No. 878.*

MINI POWER TOOL CATALOG—Designed for easy reference, Ryobi's "shirt pocket" Power Tool Catalog includes our complete line of power tools, categorized by type: bench top, cordless, hand-held and stationary models. It features individual tool photographs with specifications and clear descriptions that offer specific uses and benefits. Accessories are also listed. Send for catalog. **RYOBI.** Free. *Circle No. 925.*

WOODWORKING CATALOG—48-page full-color catalog of top quality woodworking machines and supplies. See the American made tools! Total Shop is bringing production home. Many tools now made in the U.S.A. Dust collectors, table saws, lathes, drills, you name it we have it. Catalog free! **TOTAL SHOP.** Free. *Circle No. 940.*

THE WOODWORKERS' STORE CATALOG—New! The Woodworkers' Store 1993/94 catalog with over 200 new items features 104 full color pages of domestic and exotic hardwoods, veneers, wood parts, specialty hardware, kitchen accessories, finishing supplies, tools, books, and plans... Many exclusive items and hard to find specialties. Orders shipped in 24 to 48 hours. Over 39 years in business! Satisfaction guaranteed. Catalog. **THE WOODWORKERS' STORE.** $2.00. *Circle No. 965.*

KITS

INDUSTRIAL PANEL SAW/ROUTER KIT—Incredible accuracy, versatility and savings. Uses same self cleaning roller bearing system as commercial panel saws and super strong steel nickel chromed guide tubes. Instantly attach your saw or router. Build to suit your needs. Great for shop or job site. Send for info. **AARDVARK TOOL CO.** $1.00. *Circle No. 975.*

OUR QUEEN ANNE FURNITURE KITS—are ready to assemble and finish. They include dining room table, chairs, hutch, sideboard, a variety of occasional tables, and a personal desk. All are made in solid cherry, oak, walnut, and mahogany. We also stock individual Queen Anne legs for every project. Complete information in our brochure packet. **ADAMS WOOD PRODUCTS.** Free. *Circle No. 1002.*

SHIP MODELING CATALOG—Historic Ship Models—Museum quality replicas you build yourself. Pre-cut wooden parts, metal and brass fittings, cloth sails, plans and instructions. Send for 80 page color catalog. **MODEL EXPO, INC.** $1.00. *Circle No. 1075.*

BUCKBOARD BENCH KIT—Kit includes, steel springs that give a little, metal arms and back rails, hardware, and complete instructions. Also available kit with oak parts cut to size. Send for information. **THE ROUDEBUSH CO.** 50¢. *Circle No. 1085.*

SHOP ACCESSORIES

WOOD MOISTURE METER—Insure the quality of every project by using a wood moisture meter. Delmhorst Model J-88 is ideal for a woodworking shop or the serious craftsman. Easy to read LED display indicates 10 ranges of moisture content between 6% & 20%. Send for catalog on our complete line of wood moisture meters. **DELMHORST INSTRUMENT CO.** Free. *Circle No. 1217.*

NEW...RADIAL ARM FENCE SYSTEM—Featured in WOOD Magazine June 92 issue "Products that Perform". Doyel Enterprises produces a precision cut-off and angle cutting fence system. Only one 90 degree cut is required on your table top (no more swiss cheese). Instantly replaces your existing wood fence. Angle accuracy less than ¼ degree and cut-off accuracy of less than 1/64 inch. Quality heavy duty extruded and machined construction. Send for literature. **DOYEL ENTERPRISES.** Free. *Circle No. 1225.*

ECON-ABRASIVES—manufactures abrasive belts up to 52" wide in any grit. We carry hundreds of woodworking related accessories including: Velcro® backed discs, bar clamps, wood glue, drawer slides, chisels, hinges and hundreds of sanding accessories. Send for our 1992 catalog. **ECON-ABRASIVES.** Free. *Circle No. 1229.*

EASY DOES IT—with HTC'S power tool accessories. Discover many unique items, designed only with you, the dedicated woodworker, in mind. Make your machinery safer, increase the working area of your shop and accomplish nearly impossible tasks easily, quickly, accurately. Full-line catalog and price list. **HTC PRODUCTS, INC.** Free. *Circle No. 1245.*

ROUTER SPEED CONTROL—Reduces speed electronically without reducing torque. Route at the speed that gives best results with the wood and bit you are using. Speed adjustable from full speed to 0 RPM. Less tear out—stops burning—less wear on bits—easy to use. Send today for information. **MLCS LTD.** Free. *Circle No. 1251.*

LUMBER DRYING—Dry your own lumber using our equipment and your insulated chamber. Dehumidifica-tion systems from 300 BF to 45,000 BF. Easy to operate equipment offers high quality kiln-dried lumber for pennies per foot. These long-lasting made-in-the-USA units can pay for themselves in one month! Send for free catalog. **NYLE STANDARD DRYERS, INC.** Free. *Circle No. 1260.*

"WOOD-FRIENDLY"™ L606 MOISTURE METER—uses advanced electromagnetic wave technology to accurately measure wood moisture content from 6% to 30% to a depth of ¾". No pins to "abuse" wood and leave ugly holes. Check out boards from top to bottom in just seconds before you buy and avoid the headaches of splitting, warpage, delaminating and failed glue joints. The Wagner L606's convenient pocket size, easy-to-read analog meter, and low price make it a must for anyone working with wood. Literature. **WAGNER ELECTRONIC PRODUCTS, INC.** Free. *Circle No. 1285.*

BITS, BLADES, CUTTING TOOLS

CASCADE TOOLS—The 1993 Cascade Tools catalog is the finest ever. It's jammed with great buys on SY brand industrial-grade router bits, shaper cutters and an excellent assortment of hard-to-find accessories. You'll have to see it to believe it. **CASCADE TOOLS, INC.** Free. *Circle No. 1315.*

ENLON IMPORT CORP.—Check out n' Save. We offer a wide selection with over 100 varieties of professional quality carbide tipped router bits & shaper cutters with irresistible prices, find out yourself. Catalog. **ENLON IMPORT CORPORATION.** Free. *Circle No. 1318.*

FREUD—Premier line of carbide-tipped sawblades, router bits, shaper cutters and other woodworking tools, Freud offers a full-line on anti-kickback carbide-tipped router bits. Send for a free new router bit catalog. **FREUD.** Free. *Circle No. 1321.*

SUPER-SMOOTH, EXTRA-DURABLE, CARBIDE-TIPPED CIRCULAR SAW BLADES—Get a smooth-as-sanded surface with our all-purpose 40-tooth Woodworker Blade. You will be able to rip and cross-cut 1 – 2 in. rock hards and soft woods with an unbelievably smooth finish. You will also be able to cross-cut oak and birch plyveneers with no bottom splinters. Send today for our information pack. **FORREST MFG. CO., INC.** $1.00. *Circle No. 1322.*

PRODUCTION QUALITY CARBIDE TIPPED ROUTER BITS—MLCS Ltd. has a new 32-page catalog featuring hundreds of high quality carbide tipped router bits, shaper cutters, the Router Speed Control, the "Merle Adjustable Corner Clamp," plus other Professional Woodworking Products. Prices 50% to 70% lower than elsewhere. Value, quality and prompt service guaranteed! **MLCS LTD.** Free. *Circle No. 1350.*

WOODWORKER'S RESOURCE

TO ORDER THESE BOOKLETS, USE COUPON ON PAGE 94

HARDWARE/ WOOD PARTS

CHERRY TREE TOYS CATALOG—68 pages of plans, parts, kits and supplies for All Skill Levels. Clocks, whirligigs, dollhouses, door harps, banks, and many more attractive items—plus wooden dowels, pegs, wheels, knobs, & more. Tools, paint supplies, stencils, stamps and much more! Bulk prices available. Catalog. **CHERRY TREE TOYS.** $1.00. *Circle No. 1420.*

HARDWARE CATALOG—A unique 48-page catalog of the very finest in classic, traditional solid brass cabinet hardware. All of British or No. American manufacture. Double & single post handles, knobs, escutcheons, standard & specialty hinges, box hardware, brass screws, castors, latches, catches, locks, and more. **GARRETT WADE CO.** $3.00. *Circle No. 1427.*

INCOME OPPORTUNITIES

MAKE MONEY IN FURNITURE RESTORATION THE MINUTEMAN WAY—Earn $200-$1000 per day stripping, repairing, refinishing, mirror resilvering, and/or veneering, at home or in shop, spare time or full time. We provide complete training; no experience necessary. Free workshop teaches you latest in furniture restoration. You have to see it to believe it! Business preview video $19.95. Send for catalog. **MINUTEMAN.** $2.00. *Circle No. 1661.*

MISCELLANEOUS

PUT A DRESSER UNDER ANY BED!—Up to 16 large drawers. Fits all beds, solid wood construction, dust proof, cedar partitions, ball bearing drawer slides, long center storage. Beautiful, economical, space saving storage. Shipped UPS. 32-page catalog. **ANDERSON MFG. CO.** $1.00. *Circle No. 1795.*

MECHANISMS FOR MAKING WOODEN BARREL PENS—Pencils/Roller Ball Pens/Fountain Pens. High quality. Low prices. Wholesale/ Retail. Plus other related items. **BEREA HARDWOODS CO.** $1.00. *Circle No. 1900.*

HOW TO DRILL YOUR OWN WATER WELL—Free! Big information package, including "How to Drill Your Own Water Well" booklet. There's no limit to the wonderful things you can do when you have your own private water system and no water bills. Learn how over 100,000 home water wells have been drilled this easy, low-cost way since 1962. Video also available. **DeepRock MFG. CO.** Free. *Circle No. 1915.*

DELPHI STAINED GLASS—80-page color catalog of stained glass and related supplies. Beveled glass, hard-to-find tools, hundreds of unique patterns, kits, books, videos, and lots more. For 18 years, we've supplied both hobbyists and professionals with quality products, friendly advice, and fast 24-hour shipping. All products guaranteed 100%. **DELPHI STAINED GLASS.** $4.50. *Circle No. 1920.*

ROLL-TOP COVER—QUICK & EASY! The Roll-Top Cover instantly rolls out to keep contents dry and secure. When not required it rolls into its small 9¼" storage canister for carrying tall loads. The full length handle can be easily operated with *one hand* from either side of the truck. Send for brochure. **PACE-EDWARDS CO.** $1.00. *Circle No. 1985.*

SALTER INDUSTRIES—Salter Industries manufacture high quality spiral stairs to meet the design needs of today. Oak and brass options are available to combine with a sturdy steel main frame. Stock or custom stairs range in diameter from 3'6" to 7'. Brochure. **SALTER INDUSTRIES.** Free. *Circle No. 1995.*

SARAL® TRANSFER PAPER—is ***wax free*** transfer/ graphite paper which allows you to transfer your design from a sketch, pattern, template, or free-hand to any wood surface. It makes clean crisp tracings which can be erased like pencil or painted over. It's reusable. Available in 5 colors: graphite, white, red, yellow, blue. Send for Sample Package (one 8½" x 12" sheet each color). **SARAL PAPER CO. INC.** $5.25. *Circle No. 2000.*

STEELMASTER BUILDINGS—are available in almost any size for almost any use. From 10' to 100' wide and any length imaginable. Whether you need a back yard shop... an industrial shop... equipment storage building... whatever your requirements, you'll find a Steelmaster that's just the right size for the job. Our buildings are so easy to construct, most owners opt to construct their buildings themselves which adds up to even bigger savings. Send for information. **STEELMASTER.** $1.00. *Circle No. 2030.*

IF YOU ARE INTERESTED IN RESTORING ANTIQUES—this 272-page catalog packed with unusual, hard-to-find items is just for you. Included are hundreds of essential items for antique restoration including top quality brass reproduction hardware, oil lamps and accessories, numerous wood component repair parts and kits, caning and basketry supplies, everything needed for wood refinishing, related tools, books, and a complete line of upholstery equipment and supplies. All at wholesale prices. Send for this informative catalog. **VAN DYKE'S RESTORERS.** $1.00. *Circle No. 2077.*

LEGAL IVORY—Virtually identical to animal ivory. Tagua is the nut from a tropical palm tree. Ideal for jewelry, knobs, small turnings, inlay, or scrimshaw. Available in 3 sizes. Send for information. **WOODWORKERS SOURCE.** Free. *Circle No. 2090.*

****THE WOODWORKING SHOWS* MACHINERY, TOOLS AND SUPPLIES***—Hundreds of products for the woodworker demonstrated and sold at discount prices at every *Woodworking Show*. In-depth seminars and free workshops on a variety of woodworking topics. Shows are scheduled in 27 cities. Send for free brochure. ***THE WOODWORKING SHOWS*.** Free. *Circle No. 2095.*

CARVING SUPPLIES

WOOD CARVING MACHINES AND ACCESSORIES—make all types of wood carving easy, fun and profitable. The machines do the work. Whether for sign carving, flat 3-D, decoys, panels, gun stocks or furniture, we have the proper machine for the job. Professional woodcarving for the hobbyist and superior quality for the professional. Begin your hobby or full or part-time business by ordering our catalog and price list. **MARLIN INDUSTRIES.** $1.00. *Circle No. 2150.*

ELECTRIC WOOD CARVING TOOLS—Sugino Auto-Mach electric carving tool chisels wood at up to 10,000 VPM. Safe, lightweight, easy-to-use, the pressure-activated head controls carving speed and depth, speeds carving faster than mallet and chisel methods. Professional quality suitable for novice and journeyman carver. Wide variety of hardened steel cutting blades. Operates on household current. **SUGINO CORP.** Free. *Circle No. 2170.*

CLAMPS

MERLE ADJUSTABLE CORNER CLAMP—Quick & easy to use. It forces your work into square. Fully adjustable from 2⅝" x 2⅝" to 69" x 69" in. Perfect for clamping picture frames, cabinets, or anything that requires 90° corner clamping. The Merle Clamp is cast aluminum & steel construction, a true industrial quality tool. Send today for information. **MLCS LTD.** Free. *Circle No. 2250.*

WOODWORKER'S RESOURCE

Better Homes and Gardens®
WOOD Magazine, June 1994
Dept. JNWO94
P.O. Box 7931
Riverton, NJ 08077-7931

WOOD Magazine's Toll Free Resource Line:
1-800-278-3388

For quicker service use our new toll free number to order literature by mail 24 hours a day.

- **Operators will be standing by to take orders**
- **You may pay for your literature by credit card**
- **A service charge of $3.50 applies to all orders**
- **Please have item numbers ready**
- **ALLOW 4–6 WEEKS FOR DELIVERY**

OR

TO ENSURE PROMPT HANDLING OF YOUR ORDER FOLLOW THESE INSTRUCTIONS:

- **Circle your choice**
- **Enclose check or money order for cost of booklets plus $2.00 service charge (no stamps accepted)**
- **NO FOREIGN ORDERS ACCEPTED**
- **Send coupon and remittance to address above**
- **ALLOW 4-6 WEEKS FOR DELIVERY**
- **Coupon expires June 12, 1995**

WOOD SUBSCRIPTION

A 1 year WOOD subscription (9 issues) for $25.00 (U.S. price)—a $19.55 savings off newsstand rate. Allow 6-8 weeks for first issue. Be sure to include payment with total below. NO FOREIGN ORDERS ACCEPTED ON THIS COUPON; please contact Subscription Dept. directly.

Circle numbers below corresponding to items in this issue. Please include $2.00 for handling charge.

3.....$2.00	84 .....Free	410.....$1.00	855.....$4.00	1217 .....Free	1322.....$1.00	1995 .....Free
6.....$3.00	86 .....Free	445.....$2.00	860 .....Free	1225 .....Free	1350 .....Free	2000.....$5.25
15 .....Free	92.....$1.00	465.....$1.00	878 .....Free	1229 .....Free	1420.....$1.00	2030.....$1.00
18 .....Free	94.....$2.00	485.....$2.00	925 .....Free	1245 .....Free	1427.....$3.00	2077.....$1.00
35 .....Free	190.....$1.50	510.....$1.00	940 .....Free	1251 .....Free	1661.....$2.00	2090 .....Free
44 .....Free	345.....$3.00	512 .....Free	965.....$2.00	1260 .....Free	1795.....$1.00	2095 .....Free
48.....$1.00	373.....$9.95	598.....$1.00	975.....$1.00	1285 .....Free	1900.....$1.00	2150.....$1.00
49 .....Free	374.....$8.95	615.....$6.00	1002 .....Free	1315 .....Free	1915 .....Free	2170 .....Free
57 .....Free	375...$12.50	625...$23.95	1075.....$1.00	1318 .....Free	1920.....$4.50	2250 .....Free
78.....$1.00	376.....$8.50	830.....$2.00	1085.....50¢	1321 .....Free	1985.....$1.00	

Name (please print) _____
Address _____
City _____
State _____ Zip Code _____
Phone (Optional): _____ – _____

I AM ENCLOSING:

$ _____ for priced items
$ 2.00 for handling
$ _____ total remittance

ORDER 1-800-328-0457 MAIL ORDER HOURS M-F 7:00-5:30 C.S.T. SAT 8:00-1:00

DELTA TOOLS

Model	Description	List	Sale
23-700	Wet/Dry Grinder	234	172
23-680	6" Bench Grinder 1/4 HP	86	75
23-880	8" Bench Grinder 1/2 HP	151	115
11-950	8" Drill Press	199	144
31-050	1" Belt sander 2.0 amp	104	78
31-460	4" Belt/Disc Sander	198	135
31-340	1" Belt/8" Disc Sander	268	204
31-080	1" Belt/5" Disc Sander	134	94
40-560	16" 2 speed Scroll Saw	266	178
11-990	12" Bench Drill Press	276	205
11-090	32" Radial Bench Drill Press	399	289
43-355	3/4" Shaper 1-1/2 HP	964	729
43-505	1/2" Bench Router/Shaper	399	279
22-540	**12" Bench Top Planer**		398
36-220	10" Compound Mitre Saw	350	229
28-180	Bench Band Saw	232	165
28-190	NEW 12" Band Saw	465	365
40-640	20" Bench Scroll Saw	466	295
37-070	NEW 6" v/spd Bench Jointer	337	248
14-650	Hollow Chisel Mortiser	668	289
46-700	12" Wood Lathe	548	445
33-990	10" Radial Arm Saw	818	639
37-280	6" Motorized Jointer	488	395
37-154	DJ15 6"Jointer w/3/4HPmotor	1451	1155
50-179	3/4 HP 2 stage Dust Collector	483	345
70-200	20" Floor Drill Press	1049	829
33-055	8-1/4" Sawbuck comp w/legs	865	615
34-330	8-1/4" Table Saw 13 amp	343	245
32-100	Stationary Plate Jointer	645	249
36-040	8-1/4" Compound Mitre Saw	224	155
34-915	30" Unifence	385	239
34-897	50" Delta Unifence	525	285
36-755	10" Tilt Arbor Saw	1264	965
34-444	Contractors Table Saw	812	629
34-445	34-444 Saw w/30" Unifence	1200	775
34-445B	34-444 w/Bies. 50" saw fence	1300	889
17-900	16-1/2" Floor Drill Press	462	399
40-601	18" Scroll Saw with stand	1003	749
22-661	13" Planer with 2HP motor	1513	1199
33-060	NEW "Sidekick" Miter Saw	510	369
14-070	NEW 14" Floor Drill Press	450	349
50-075	Dust Collector/Sweeper 3/4 HP	360	249
28-283	14" Band Saw w/enc. stand	910	745

MILWAUKEE TOOLS

6527	NEW Sawzall with case	320	168
6528	above Sawzall w/wired cord	316	168
6125	NEW 5"Random Orbit Sander	200	114
6126	NEW 6"Random Orbit Sander	205	119
0399-1	12V cordless Drill Kit comp	315	172
0402-1	**above Drill w/kyls chuck & 2 batt**		172
0395-1	9.6V cordless Drill with case	290	158
0224-1	3/8" Drill 4.5 amp magnum	227	114
0234-1	1/2" Drill 4.5A mag 0-850 rpm	237	124
0244-1	1/2" Drill 4.5A mag 0-600 rpm	237	123
0222-1	3/8" Drill 3.5 amp 0-1000 rpm	198	107
0228-1	3/8" Drill 3.5 amp 0-1000 rpm	195	104
0375-1	3/8" close quarter Drill	237	127
0379-1	1/2" close quarter Drill	268	145
6546-1	cdls Scrwdvr 200 & 400 rpm	141	82
5399	1/2" D-hdle Hammer Drill Kit	332	194
6750-1	Drywall Gun 0-4000 5 amp	171	94
6507	Original SawZall with case	264	144
6010	Orbital Sander 1/2 sheet	214	118
8977	variable temp. Heat Gun	131	77
5397-1	3.6" var. spd Hammer Drill Kit	255	138
5371-1	1/2" var. spd Hammer Drill Kit	340	184
3107-1	1/2" v/spd right angle Drill Kit	399	209
6754-1	Drywall Gun 0-4000 5.4 amp	196	112
3300-1	1/2" var. spd right angle Drill	356	185
5680	Router 2 HP - 12 amp	362	198
0235-1	1/2" Drill w/keyless chuck	237	128
6145	4-1/2" Grinder 10,000 rpm	168	99
6142	6145 with case & accessories	208	124
6749-1	Drywall Gun 0-2500 5.4 amp	218	124
6365	7-1/4" Circular Saw 13 amp	218	122
6366	6365 w/fence & carbide blade	228	127
6368	6365 w/fnce,carb. blde,& cse	249	139
6377	7-1/4" Worm Drive Saw	330	184
6256	Top Handle Jig Saw	264	144
6490	10" Mitre Saw	444	255

FREUD CARBIDE TIPPED SAW BLADES
5/8" Bore - Industrial Grade

Item	Description	Teeth	List	Sale
LU72M010	Gen Pur. A.T.B.	10° 40	69	39
LU82M010	Cut-off	10° 60	93	49
LU84M011	Comb	10° 50	78	42
LU85M010	Super Cut-off	10° 80	115	59
LM72M010	Ripping	10° 24	69	38
LU73M010	Cut off	10° 60	84	45
LU87M010	Thin Kerf	10° 24	72	39
LU88M010	Thin Kerf	10° 60	88	45
LU98M010	Ultimate	10° 80	128	68
LU91M010	Compnd Mitre	10° 60	88	54
F410	NEW Quiet Blade	10° 40	95	49
F810	NEW Quiet Blade	10° 80	135	74
TK303	7-1/4" Finishing	40	38	22
TK306	10" Finishing	40	47	25
TK906	10" Combo	50	53	29
SD306	6" Dado - Carbide		215	112
SD308	8" Dado - Carbide		230	119
SD506	6" carbide w/case & shims		292	148
SD508	8" carbide w/case & shims		344	168
F0	1-3/4" x 5/8" Biscuit 1000 Qty		43	29
F10	2-1/8" x 3/4" Biscuit 1000 Qty		43	29
F20	2-3/4" x 1" Biscuit 1000 Qty		45	29
FA	Assorted Biscuits 1000 Qty		45	29
FB100	16 piece Forstner Bit Set		338	184
94-100	5 pc. Router Bit Door System		320	159
TR215	NEW 10" Slide Cmpd Mitre Saw		688	359
FT2000E	3-1/4 HP v/sp Plunge Router		410	205
JS100	Biscuit Jointer with case		334	164

MAKITA TOOLS

Model	Description	List	Sale
6070DW	3/8" v/spd Reverse Drill 7.2V	128	74
6071DWK	above Drill w/removable batt.	216	119
5090DW	3-3/8" Saw Kit 9.6 volt	270	139
6010SDW	3/8" cordless Drill Kit 7.2V	99	59
ML900	Incandescent Flashlight 9.6V	Sale	37

6012HDWE	2 speed Drill Kit w/2 batt.	243	129
6093DWE	6093DW Drill Kit w/2 batteries	270	145
6095DWE	**6095DW Drill Kit w/2 batteries**		139
6201DWE	NEW 9.6V Drill Kit w/2 batt.	298	158
6211DWE	12V Drill Kit with 2 batteries	330	168
632007-4	9.6 volt Battery	47	30
632002-4	7.2 volt Battery	39	28

5007NBA	7-1/4" Saw w/electric brake	263	127
5008NBA	8-1/4" Saw w/electric brake	346	195
B04510	1/4 sheet Pad Sander	106	59
9900B	3" x 21" Belt Sander w/bag	344	159
9924DB	3" x 24" Belt Sander w/bag	329	169
4301BV	Orb. var. spd Jig Saw 3.5A	292	169
JR3000V	var. speed Recip Saw w/case	252	135
LS1020	10" Mitre Saw 3.5 amp	630	355
9820-2	Blade Sharpener	394	195
N1900B	3-1/4" Planer with case	244	129
1911B	4-3/8" Planer 7.5 amp	309	179
9514B	4" Disc Grinder 4.6 amp	111	65
3601B	1-3/8 HP Router	288	165
B04550	1/4 sheet Pad Sander w/bag	98	54
DA3000R	3/8" Angle Drill	314	159
2708W	8-1/4" Table Saw	585	298
2711	10" Table Saw with brake	1067	569
6404	3/8" Drill Rev. 0-2100 rpm	112	58
6510LVR	3/8" Drill Rev. 0-1050 rpm	168	93
6820V	0-4000 rpm Drywall Gun	171	92
6013BR	1/2" Drill Rev. 6 amp	280	139
5402A	16" Circular Saw 12 amp	743	429
9401	4" x 24" Belt Sander w/bag	378	205
4302C	var. speed Orbital Jig Saw	351	199
5077B	7-1/4" Hypoid Saw	281	155
LS1030	NEW 10" Mitre Saw	428	215
5007NB	7-1/4" Circular Saw 13 amp	232	119
2012	12" Portable Planer	959	525
LS1011	10" Slide Compound Saw	946	539
AN8300	NEW Pneumatic Fram. Nailer	850	445

SIOUX TOOLS

8030	New 3/8" var/spd Drill	250	139
8000	3/8" var/spd close qtr Drill	201	123
690	5" Air Random Orbit Sander	139	132

SENCO AIR NAILERS

SFN1	Finishing Nailer 1" - 2"	448	298
SFN2	Finish. Nailer 1-1/2" - 2-1/2"	571	375
SN325	Nailer 1-7/8" - 3-1/4"	665	419
SLP20	New Pinner w/one 5/8 -1-5/8"	399	269
SKS	Stapler 5/8" - 1-1/2"	390	259
SN70	Fram. Nailer Clip Hd 2"-3-1/2"	690	475
SN80	Fram. Nailer-Full Hd 2"-3-1/2"	638	455

BOSTITCH AIR NAILERS

N80S-1	Stick Nailer	Super Sale	348
N12B-1	Coil Roofing Nailer	845	395
N60FN-2	Finishing Nailer	650	335
T31	Brad Nailer	281	145
CWC100	1 HP Pancake Compressor	463	289

EXCALIBUR Fences & Tables

TT45R24L9	24" Fence	369	299
TT45R50L12	50" Fence	399	318
EXSLT30	Sliding Table	599	475
EXSLT60	Sliding Table	745	585

SKIL SIZZLERS

77	7-1/4" Worm Drive Saw	257	144
2735-04	12 volt cordless Drill Kit	249	132
2736-04	2735-04 with keyless chuck	269	135
1605-02	Biscuit Jointer w/case	221	129
3400	10" Table Saw - Bench Top	270	185

PANASONIC CORDLESS

EY6205BC	Variable speed 12 volt Drill with 15 minute charger & case	353	185
EY6205EQK	Same as EY6205BC but comes with **Ironman** battery	368	189
EY6207BC	NEW 12 volt 1/2" Drill w/keyless chuck var. speed w/15 min. charger & case	420	222
EY6282EQK	Var. spd 9.6 volt Drill with 15 min. charger, case & NEW **Ironman** battery	315	168
EY62821DKW	9.6 volt Drill Kit w/2 batt.	395	158
	NEW PREDATOR DRILLS		
EY6181CRKW	NEW 9.6V Compact Drill Kit w/2 batt - 10% more pwr than EY62821DKW	305	158
EY6100CRKW	NEW 12 volt Drill Kit with 2 batteries, 1 hour charger, & case	358	189
EY6100EQK	NEW 12 volt Drill kit with NEW **Ironman** battery, 15 min. charger, & case	375	199

PASLODE IMPULSE GUNS

IM250	Trimpulse Finish Nailer Kit	849	595
IM325	Impulse Framing Nailer Kit	849	595

WAGNER PAINT & SPRAYER PRODUCTS

120	Power Sprayer	70	57
230HD	Power Painter/Sprayer	100	84
255	Airless Kit	180	130
375E	Airless System	195	159
404	Airless Painter & Roller	320	249
505	High performance Airless Painter	440	369
550	Pro Airless Painting System	769	685
HVLP	Fine coat finishing HVLP System	195	155
CS2000	Pro fine finsih HVLP System	339	269

TOOLS ON SALE™

AMERICA'S LOWEST PRICED TOOLS
FREE FREIGHT TO THE
48 CONTINENTAL STATES ON EVERY ITEM

PRICES SUBJECT TO CHANGE WITHOUT NOTICE
* We reserve the right to verify that the competing price quote is offered in good faith

1994 TOOL CATALOG AVAILABLE
Call Toll-Free 1-800-328-0457 In Minn. Call (612)224-4859
FAX: (612)224-8263
CHECK • MONEY ORDER • VISA • MASTERCARD • DISCOVER

SEVEN CORNERS ACE HDW. Inc.
216 West 7th St. • St. Paul, MN 55102 • Est. 1933

Airy Air Nailers

0241SK
Brad Nailer 3/8"-1 9/16"
Same as Senco SLP-20
List 180 Sale 98

0250SK
Brad Nailer 3/4"-2"
List 296 Sale 165

0626SK
1/4" Crown Stapler 3/8"-1"
List 194 Sale 105

0635SCK
1/4" Crown Stapler 1/2"-1-3/8"
Same as Senco SKS
List 310 Sale 165

Above Nailers come w/case, fasteners, oil & wrenches

0565T
Angle Finish Nailer 1"-2-1/2"
List 386 Sale 205

DELTA
#34-080
10" MITRE BOX
XTRA SPECIAL
198.00

DEWALT TOOLS

DW364	7-1/4" Circ. Saw w/brake 13 A	285	148
DW945K-2	3/8"12V cdls Drill Kit w/2 batt	309	169
DW944K-2	3/8"9.6V cdls Drill Kit w/2 batt	283	149
DW610	1-1/2 HP 2 handle Router	274	148
DW411	1/4 sheet Palm Sander, 1.7 amp	97	58
DW1003	3/8" Drill, 4 amp,0-2500 rpm,rev.	116	68
DW510K	1/2" v/spd Hammer Drill w/case	311	165
DW682K	NEW Biscuit Joiner with case	429	225
DW705	12" Compound Mitre Saw	706	358
DW615	NEW 1-1/4 HP Elec. Plge Router	290	158
DW625	**NEW 3 HP var. spd Plunge Router**	269	269
DW675K	NEW 3-1/8" Planer with case	289	159
DW431	NEW 3 x 21 v/spd Belt Sander	331	185

PORTA NAILER

401	Porta Nailer complete	265	205
501	Face Nailer complete	265	205

WERNER LADDERS

6204	4' Fiberglass	179	65
6205	5' Fiberglass	199	75
6206	6' Fiberglass	225	82

HITACHI TOOLS

F1000A	12" Planer/6" Jointer	2970	1559
P12R	12-9/32" Planer	1470	769
P12RA	Planer/Jointer	1940	989
C8FB	8-1/2" Slide Compound Saw	1400	599
G12SA	4-1/2" Grinder 6.9 amp	160	89
DS10DVAK	NEW 12V Cordless Drill Kit	393	199
NR83A	Framing Nailer 2 - 3-1/2 Full Head	700	385
NR83AA	Framing Nailer 2 - 3-1/2 Clip Head	750	409
NT65A	16 ga. Brad Nailer 1 - 2-1/2	610	318
NV45AB	Coil Roofing Nailer 7/8 - 1-3/4	750	395
NV83A	Coil Nailer 2 - 3-1/4	750	409

BIESEMEYER FENCES

B-50	50" Commer. Saw Fence	345	298
T-SQUARE 52	52" Homeshop Fence	279	238
T-SQUARE 40	40" Homeshop Fence	259	208
T-SQUARE 28	28" Homeshop Fence	249	198

RECORD WOODWORKING VISES

Model	Jaw Width Opening	List	Sale
53E	10-1/2"\15" Quick release	199	109
52D	7"\8" Quick release w/dog	137	85
52-1/2D	9"\13" Quick release w/dog	186	109

Msx636 FEIN	Triangle Sander Kit	Sale	185
LPN672 PONY	Air Palm Nailer w/glove	Sale	94.99

JORGENSEN ADJUSTABLE HANDSCREWS

Item#	Length	Jaw Open	Cap	List	Sale	Box of 6
#0	8"	4-1/2"		19.76	11.75	58.00
#1	10"	6"		22.63	12.50	68.00
#2	12"	8-1/2"		25.95	14.50	78.00
#3	14"	10"		32.88	18.00	99.00
#4	16"	12"		42.76	23.95	139.00

JORGENSEN STYLE 37 2-1/2"Throat 1/4"x3/4"

Item#	Jaw Length	List	Sale	Box of 6
3706	6"	10.67	6.05	32.50
3712	12"	11.82	6.50	35.10
3718	18"	13.04	6.99	37.75
3724	24"	14.25	7.99	42.50
3730	30"	15.88	8.85	47.75
3736	36"	17.36	9.99	53.95

PONY CLAMP FIXTURES

Model		List	Sale	Lots of 12
50	3/4" Black Pipe Clamps	14.87	7.90	89.95
52	1/2" Black Pipe Clamps	12.40	6.80	72.95

BOSCH

Model	Description	List	Sale
1587VS	NEW Top Hand "CLIC"Jig Saw	292	165
1584VS	NEW Barrell"CLIC"Jig Saw	285	159
Bosch Metal Case for above Jig Saws		34	32
Bosch 30 blade assortment for Jig Saws			27.99
1942	Heat Gun 600° - 900°	125	78
1272D	3" x 24" Belt Sander with bag.	375	185
1273D	4" x 24" Belt Sander with bag.	380	195
11-212VSR	Bulldog 3/4"SDS Rtry Drill	390	198
1347AK	4-1/2" Grinder w/cs & access.	185	104
1348AE	5" Grinder 8.5 amp	225	118
1194VSR	1/2" var. speed Hammer Drill	282	145
1194VSRK	above Hammer Drill w/case.	313	169
1608	5.6 amp Laminate Trimmer	168	88
1609K	Lam Installers Kit with 1609	343	175
1609KX	Deluxe Installers kit	405	198
1604A	1-3/4 HP 2 Handle Router	250	134
1604AK	same as above w/cse & acc	318	169
1606A	1-3/4 HP D-handle Router	295	168
3258	3-1/4" Planer w/blade guard	247	138
3258K	3258 Planer with steel case	273	154
3270DVS	3 x 21w/spd belt sander w/ bag	270	159
1273DVS	var. spd 4" x 24" Belt Sander	415	204
1614	NEW 1HP Plunge Router	245	128
1614EVS	NEW 1-1/4HP v/spd Plge Rtr.	283	149
1613	NEW 1-3/4 HP Plunge Router	316	164
1613EVS	**NEW 2HP v/sp Plunge Router**		183
1615	NEW 3 HP, Plunge Router	430	228
1615EVS	NEW 3 HP v/spd Plge Router	505	244
1632VSR	Recip Saw 8.4A orb-v/spd	225	148
3050VSRK	9.6V cdls v/sp Drill Kit comp	288	138
3051VSRK	3050VSRK w/keyless chuck	299	145
1370DEVS	6" Random Orbit Sander	427	219
3283DVS	5" Random Orbit Sander	169	98
3283DVSK	3283DVS Kit complete	199	118

ELU BY BLACK & DECKER

Model	Description	List	Sale
3338	2-1/4 HP v/spd Plunge Router	501	199
3375	3-1/8" Univ. planer 7.2 amp	329	159
3380	Biscuit jointer with case	569	249
3339	NEW 3 HP v/sp Plunge Router	511	269

BLACK & DECKER

1166	3/8" Drill 0-2500 rpm 4 amp	118	65
1703-1	10" Mitre Saw w/73-770 blde	344	188
79-034	Workmate 400	181	109
2694	7-1/4" Super Sawcat w/case	285	152
2695	8-1/4" Super Sawscat w/case	328	162

DAVID WHITE

LP6-20	Sight Level package - 20x	310	192
LP6-20XL	LP6-20 w/9056 tripod & 7620 rod		259
L6-20	Meridian Level - 20x	290	185
LT8-300	Level Transit - 26x	695	445
LT8-300P	above Level w/optical plum	821	518
LT6-900	Level Transit - 20x	389	249
ALT6-900	Automatic Level - Transit -18x	638	395
ALTP6-900	above Level w/tripod & rod	708	469
ALP6-18HD	above Level w/tripod & rod	570	375
ML100I	NEW Laser Level	1099	945
ML100	NEW Laser Level w/detector.	1249	1075

RYOBI SPECIALS

JP-155	6-1/8" Jointer/Planer	700	305
TS-254	10" Mitre Saw	440	209
RE600	3 HP Plunge Router	500	235
BE321	3" x 21" var. spd Belt Sander	310	135
TFD222VRK	12V cordless Drill Kit	365	155
TFF100	Flashlight uses 7.2, 9.6,or 12v batt		29.95
JM100K	Biscuit Jointer w/case	475	215
BT3000	10" Table Saw with stand	1125	529
TSS220	8-1/2" Slide Comp. Saw	966	445
DS1000	NEW Detail Sander	90	44
AP12	NEW 12" Bench Planer	884	399
RA202	NEW 8-1/4" Bench Radial Saw	800	389
BS900	NEW 9" Bench Band Saw	340	174
OSS450	NEW Oscilating Spindle Sander	340	174

LAMELLO BISCUIT JOINTERS

TOP 10	"Simply the Best"	699	538
STANDARD 10	"Professionals Choice"	499	399

QUAL-CRAFT PRODUCTS

2200	Pump Jack	79	58
2201	Pump Jack Brace	30	20
2203	Pump Jack guard rail holder	31	21
2204	Workbench & rail holder combo	53	39
	Buy any 6 (can be assort.) deduct 10%		
2601	Wall Jack	167	108
	Lots of 4 deduct additional 10%		

PORTER CABLE

690	1-1/2 HP Router 8 amp	260	138
9690	690 Router with steel case	305	145
691	1-1/2 HP Router D-handle	285	155
695	1-1/2 HP Router/Shaper	400	218
696	HD Shaper Table	230	129
351	3" x 21" Belt Sander w/o bag	280	154
352	3" x 21" Belt Sander with bag	290	154
360	3" x 24" Belt Sander with bag	365	192
361	3" x 24" Belt Sander w/o bag	345	184
362	4" x 24" Belt Sander with bag	380	198
363	4" x 24" Belt Sander w/o bag	360	195
315-1	7-1/4" Top Hdle Circular Saw	225	118
9315-1	315-1 comp. w/cs & carb bld	255	139
97751	1/2" v/spd Hammer Drill w/cse	270	155
9118	Porta Plane Kit 7 amp	390	209
505	1/2 sheet Pad Sander	230	124
6611	3/8" var. speed Drill 5.2 amp	220	118
6614	1/2" var. speed Drill 0-750 rpm	230	124
6615	7514 with keyless chuck	230	124
7549	Top handle Jig Saw 4.8 amp	270	145
330	Speed Block Sander 1/4 sheet	110	60
555	Plate Biscuit Jointer with case	320	168
556	**555 jointer w/5556 tilt fence**		179
345	6" Saw Boss 9 amp	190	104
9345	345 comp. w/cse & carb blde	220	124
9647	TIGER CUB Recip. Saw	210	117
9637	Full var/spd Recip Saw 8 amp	270	148
7519	3-1/4 HP Router 2 Handle	445	239
7518	3-1/4 HP 5 speed Router	510	268
7538	3-1/4 HP Plunge Router	445	239
7399	5.6 amp Drywall Cutout Unit	140	84
7310	5.6 amp Laminate Trimmer	165	92
97310	Laminate Trimmer Kit comp	360	198
7334	5" Random Orbit Sander	225	122
7335	5" var. spd Rndm Orbit Sndr	245	132
7336	6" var. spd Rndm Orbit Sndr	250	137
73333	Dust Collection system	31	24.50
693	1-1/2 HP Plunge Router Base	320	174
6931	Plunge Router Base	125	77
7539	3-1/4HP v/spd Plunge Router	510	275
9852	12V 3/8"Drill w/cse 0-1000rpm	280	149
9853	9852 with keyless chuck	280	154
9855	12V 1/2" 2 spd,v/sp Drill w/cs	335	184
8500	12V battery for above drills		45
	New Tools by Porter Cable		
9841	9.6V Drill Kit-15 min. charger	309	172
9840	9.6V Drill Kit with 2 batteries	289	164
332	Palm Grip Rndm Orbit Sander	120	69
333	above Sander with dust bag	135	74
334	333 Sander with PSA pad	135	74
352VS	3x21 Belt Sander w/bag v/spd	305	165
7116	24" Omni Jig	535	294
550	Pocket cutter with case	330	179
310	Production Laminate Trimmer	250	145
7700	10" "Lazerloc" Mitre Saw	634	339
347	7-1/4" "Framers" Circ Saw	225	129
447	347 Saw with brake	245	139

FREE FREIGHT TO THE CONTINENTAL STATES ON EVERY ITEM • GIFT CERTIFICATES NOW AVAILABLE

OFF TO CONGRESS

The continent's longest-running competitive woodcarving show will reconvene at the Putnam Museum, in Davenport, Iowa, on June 23 and conclude on June 26. For nearly three decades now, the International Woodcarvers' Congress has featured top North American carvers vying for prizes in 12 categories and more than 40 classes, plus special awards. Admission is free, but carvers must belong to the Affiliated Woodcarvers, Ltd., to compete.

For more information, write: *Larry Yudis, P.O. Box 10408, Bettendorf, IA 52722-8408, or call 319/359-9684.*

Finger-to-finger redwood

The annual growth in California's coastal redwood forests is about 2.9 percent, with some areas nearing six percent. By the year 2040, the total annual growth rate will increase by at least 28 percent due to the number of newly emerging young redwood forests, predict officials at the California Redwood Association

At the same time, redwood lumber producers make better use of existing timber by marketing finger-jointed products. Available in thicknesses of ¾–2", widths to 12", and lengths up to 24', the joined wood equals architectural quality redwood in strength and appearance but sells for less. For information, request the data sheet for finger-jointed products from: *The California Redwood Assoc., 405 Enfrente Dr., Suite 200, Novato, CA 94949.*

Photographs: Mitch Kezar, Jim Kahler
Illustrations: Jim Stevenson

A place where woodworkers have aged to perfection

Russ Barnard, at 65 one of Kuempel's youngest craftsmen, has managed the wood shop for nearly 20 years.

Drop by the Kuempel Chime Clock Works and Studio in the suburban-Minneappolis community of Excelsior, and in the shop you'll see grandfathers making grandfather clocks. Yessiree, in these days of company down-sizing through early retirement, Kuempel management embraces the opposite approach. In fact, 15 of the clock company's 20 employees are ages 63 to 85!

Zeroing in on older workers isn't new to this manufacturer of wood-cased clocks and clock kits (from grandfather-size to mantel). Way back in 1916, founder Rueben Kuempel often enlisted the aid of older visitors to his workshop. Today, Kuempel lists among employees a retired school principal, a former banker, and other active senior citizens who learned woodworking on the job in the company's clock shop.

According to Bruce Hedblom, one of the owners, older workers make ideal employees because they're meticulous about quality, honest, early on the job, and they work hard. But, they do like to have time off, so the company provides flexible hours. Because of this, about the only type of clock you won't find at Kuempel is a time-clock.

Visitors to Kuempel Clock are welcome to tour the shop. You'll find them at 21195 Minnetonka Blvd., Excelsior, MN 55331. Call 800/328-6445.

HIGH-WATER LUMBER

In July 1993, surging water from the Raccoon River in Des Moines, Iowa, flooded the Frank Paxton Lumber Co. yard (loading dock shown) and other businesses.

Floodwater can do great damage—just ask any Midwesterner—but it's especially damaging to kiln-dried stock because the wood becomes rewetted. All wood need not be lost, though, says the University of Wisconsin's Department of Forestry.

Its free guidance bulletin No. 67, "Drying Rewetted Kiln-dried Lumber," by Gene Wengert and Dan Meyer, gives complete instructions for handling flooded wood, as well as dry stock that's been exposed to high humidity. In the bulletin, the authors emphasize the need to act quickly in order to avoid fungal staining and other defects that render wood a total loss. If you have a stack of wood in or near a potential flood area, hurry a request off to: *Wood Processing, University of Wisconsin-Extension, Dept. of Forestry, 1630 Linden Dr., Madison, WI 53706.*

Print this article

HOW TO FIND YOUR WAY THROUGH THE WOODS.

In woodworking, every project is an adventure. You explore the wood, studying its grain, searching for something hidden within.

Your goal is to emerge, weeks later, with a proud souvenir. A planter. A Shaker chair. Or perhaps a rustic chest of drawers.

Ironically, the ease of any woodland journey depends largely on a decision you make *before* embarking. Your choice of tools.

To this end, a move in the right direction is Skil Woodshop Tools.™

Skil Woodshop Tools are a full line of woodworking tools designed to make any project a pleasure.

Every step of the way.

Confidently enter the thickest woods with the new HD 3640 10″ benchtop band saw. Its powerful induction motor makes small work of resawing stock up to 7 inches wide. And afterward, navigate intricate curves on the large, tilting table that adjusts from –6° to 50°.

Whatever your plans call for next, the HD 1875 plunge router is sure to be part of them. Its 2¼ hp motor can carve signs, cut joints and trim decorative edges with power to spare.

For accurate, repetitive drilling, the new HD 3580 13″ benchtop drill press is exactly what you need. Its exclusive fence can be set a precise distance from the drill bit, to ensure consistency from first hole to last. This unique fence also offers plenty of room to clamp down your workpiece for added support.

When it's time for assembly, try the innovative HD 1605 plate joiner. Simply cut matching slots, pop in a wooden biscuit, glue and you have yourself a quick, durable joint.

Once it's all together, give your project a once over with the HD 7575 palm grip sander. The 7575 performs an exacting 1/16″ orbit 13,000 times a minute for a fast finish.

Next time you explore the woods, bring along the perfect traveling companions—Skil Woodshop Tools. You'll find those shown here and other Woodshop tools in stores everywhere. Just look for this label.

SKIL WOODSHOP TOOLS

It's a sure sign you're on the road to woodworking success.

SKIL®

© 1993 S-B Power Tool Co., 4300 W. Peterson Ave., Chicago, IL 60646

ENLON™
IMPORT CORPORATION
The Power You Can Trust

ORDERS
1-800-888-9697
Mon.-Fri. 7:00am-5:00pm (Pacific Time)
Sat. 8:00am-5:00pm (Pacific Time)

DEAR WOODWORKERS, WITH ENLON'S EXCLUSIVE MANUFACTURER, YOU'LL GET THE FINEST QUALITY MACHINES AND EVEN BETTER PRICES. OUR NEW MACHINES ARE MADE WITH YOUR NEEDS IN MIND.

Prices & Specifications are subject to change without notice. *F.O.B. City of Industry, CA or Clarksburg, WV

6" JOINTER

- 1 H.P.,110/220V
- 3-KNIFE CUTTERHEAD
- 47" BED LENGTH

*EN3101
REG.:$375.00
SPECIAL:
$345.00

8" HEAVY DUTY JOINTER

- 1 1/2 H.P.,220V
- 3-KNIFE CUTTERHEAD
- 65" BED LENGTH

*EN3102
REG.:$650.00
SPECIAL:
$640.00

2 H.P. DUST COLLECTOR

- 220V,15 AMPS
- 1,059 C.F.M.
- 2 INTAKES @ 4"

*EN-DC20
REG.:$285.00
SPECIAL:
$275.00

FREE 4" x 10' P.V.C. HOSE with purchase of any Dust Collector.

6" JOINTER

- 1 H.P., 110/220V, SINGLE PHASE MOTOR
- CENTER MOUNT CAST IRON FENCE W/TABLE SLIDE PROTECTOR
- QUICK ADJUSTMENT HAND CRANK FOR OUTFEED TABLE
- STURDY BASE CABINET W/DUST COLLECTOR CHUTE

*EN3104
REG.:$385.00
SPECIAL:
$360.00

8" HEAVY DUTY JOINTER

- 1 1/2 H.P.,220V, SINGLE PHASE MOTOR
- CENTER MOUNT CAST IRON FENCE W/TABLE SLIDE PROTECTOR
- QUICK ADJUSTMENT HAND CRANK FOR OUTFEED TABLE
- MAGNETIC SAFETY SWITCH, 65" LONG CAST IRON BED

*EN3105
REG.:$660.00
SPECIAL:
$650.00

10" H.D.TABLE SAW

- 1 1/2 H.P.,110/220V, SINGLE PHASE MOTOR
- 41" X 27" TABLE SIZE W/CAST IRON EXTENSIONS
- BUILT-IN DUST COLLECTOR CHUTE
- PRECISION SINGLE LEVER RIP FENCE W/MICRO-ADJUSTMENT

*EN3201
REG.:$390.00
SPECIAL:
$360.00

12" PLANER

- 2 H.P.,110V, 14 AMPS
- 16,000 C.P.M.
- 2-KNIFE CUTTERHEAD

EN-PN12
REG.:$380.00
SPECIAL:
$365.00

15" PLANER

- 3 H.P., 110/220V, 30/15 AMPS
- 2 SPEEDS: 16 & 20 F.P.M.
- 3-KNIFE CUTTERHEAD

*EN-PN15
REG.:$890.00
SPECIAL:
$825.00

10" SUPER H.D. TILTING ARBOR TABLE SAW

- 3 H.P., 220V, 15 AMPS
- PRECISION GROUND CAST IRON TABLE
- PRECISION LEVER LOCK FENCE SYSTEM
- STEEL BASE CABINET

*EN3202
REG.:$850.00
SPECIAL:
$840.00

1 1/2 H.P. WOOD SHAPER

- 110/220V, 7,000/10,000 R.P.M.
- 1/2" & 3/4" SPINDLES
- CAST IRON TABLE

*EN3302
REG.:$490.00
SPECIAL:
$480.00

3 H.P. HEAVY DUTY WOOD SHAPER

- 220V, 7,000/10,000 R.P.M.
- 1/2", 3/4" & 1" SPINDLES
- CAST IRON TABLE

*EN3303
REG.:$795.00
SPECIAL:
$780.00

3 H.P. SLIDING TABLE WOOD SHAPER

- 220V, 7,000/10,000 R.P.M.
- 24" X 9" SLIDING TABLE
- 1/2", 3/4" & 1" SPINDLES

*EN3304
REG.:$980.00
SPECIAL:
$910.00

6" X 48" BELT/9" DISC SANDER

- 3/4 H.P., 110/220V
- MITER GAUGE
- ADJUSTABLE TABLE 0-45°

*EN-SN69
REG.:$190.00
SPECIAL:
$185.00

6" X 30" EDGE SANDER

- 1 1/2 H.P., 110/220V
- 6" X 80" BELT
- QUICK RELEASE LEVER
- CAST IRON TABLE
- (MAGNETIC SWITCH IS OPTIONAL)

*EN3405
REG.:$420.00
SPECIAL:
$405.00

OSCILLATING SPINDLE SANDER

- 1 H.P.,110V,SINGLE PHASE MOTOR
- SPINDLE SPEED 1,725 R.P.M.
- 75 OSCILLATIONS PER MINUTE
- 10 SPINDLES FROM 1/4" TO 4" DIA. INCLUDED

*EN3407
REG.:$580.00
SPECIAL:
$535.00

NEW

Call for FREE Catalog or Router Bits and Shaper Cutters Catalog.

VISA MasterCard

GIFT CERTIFICATES AVAILABLE

SHOWROOM/MAIN OFFICE: 19400 E. SAN JOSE AVE., CITY OF INDUSTRY, CA 91748
CUSTOMER SERVICE: TEL: (909)468-3688 FAX: (909)468-3689 HOURS: MON-SAT 8:00AM-5:00PM P.T.

SHOWROOM/SHIPPING WAREHOUSE: 12 ARMORY ROAD, CLARKSBURG, WV 26301 HOURS: MON-FRI 8:00AM -5:00PM E.S.T.